TOTAL ECLIPSE

CHEMICAL MANAGEMENT SYSTEM



REFERENCE MANUAL

Installation, Programming and Operation

Online and downloadable Product Manuals and Quick Start Guides are available at www.hydrosystemsco.com. Click the NOVA logo >Instruction Manuals>By Usage. Don't bother digging around to locate that missing manual; find the latest version online.

Copyright 2010 Hydro Systems Company, Inc.

P/N 20-08490-00 Rev. B

This page intentionally left blank.

Table of Contents

1 TOTAL ECLIPSE System Overview

Formula Editor 1
Features 2
Principle of Operation 2
System Diagram 3
Modes of Operation 3
Overview 3
Standard Mode of Operation (default) 4
Relay Mode of Operation 4
Event Mode of Operation 4
Event Mode Rules 4
Group Mode of Operation 5
Group Interlock 5
Occurrence Mode of Operation 5
Features and Options 5
Auto Formula Select (AFS) 6
Count Pump 6
Cycle Time (Standard, Group or Occurrence Modes ONLY) 6
Flush Operation (for a Flush-compatible P.I. ONLY) 6
Non-Flush Operation 7
Formula 7
Formula Rules 7
Trigger Spacing and Pump Queue 7
Trigger Signal Filter Time 7
8-Pump Interface 8
Acronyms and Abbreviations 8

2 Installation

Machine Interface Installation 9
Signal Wire Installation 10
Supply Trigger Wiring 10
Trigger Signal Wiring Notes 10
TOTAL ECLIPSE Controller Mounting 10
Set Operating Language, Date & Time on Start-Up 11
Select Operating Language 11
Change Language After First Power Up 11
Set Date and Time 12
Change the DATE & TIME After Initial Power-Up 12

3 Description of Controls

Overview 13
Menu Navigation 13
Keys and Menu Symbols 14

4 Operator Menus

Home Screen 15
Formula Quick-Select 15
Main Menu 15
Operator Menu Tree – All Menus 16
Operator Main Menu 17
Emergency Pump Stop. 17
Change Load Size/Weight 17
User Prime Pumps (if enabled) 17
User Manual Flush (if enabled) 18
Manager Report (with Manager Password) 18
About Auto Formula Select (AFS) Operation 19
Access to Installer Menu 19

5 Installer Menus: Programming & Service Using Controller Keypad

Installer Programming Overview 21
Key Functions 21
Password Access to Installer Menus 21
Minimum Programming Required for Standard and Relay Operating Modes. 21
Installer Menu Tree – Top Level Menus 22
Installer Service 23
Service Pumps 23
Prime Pump 23
Calibrate Pumps 23
Name Pumps (Optional) 25
Enter Product Costs (Optional) 25
Date Tube Changed (Optional). 25
View Load Count 26
View Total Weight 26
View Amount Pumped (in gallons or litres) 26
Clear Data Log. 26
Initial System Setup 27
Edit Installer Password. 27
Edit Manager Password 27
Set Operation Mode 27
Set Standard Operation Mode 27
Set Relay Operation Mode 28
Set Event Operation Mode 28
Set Group Operation Mode. 28
Set Occurrence Operation Mode 30
Edit Account Name (Optional) 31
Edit Machine Name (Optional) 31
Edit Company Name (Optional) 31
About Setting the Pump Interface 31
Set Pump Interface 32
Set Flush Time (Enable Flush Operation) 32
Set Cycle Time. 32
Signal Filter Time 33

Set Auto-Formula Select [AFS] Trigger (Standard Mode ONLY) 33
Set User Prime 33
Set LCD Contrast 34
Set Date & Time 34
Clear Settings to Factory Defaults 34
View Software ID 34
About Programming Formulas 35
Formula Rules 35
Program Formulas 36
Program Formulas 36
Pump Settings 36
Test the Pump Amount 37
Set Default Weight 37
Set Count Pump (Optional – Standard, Group and Occurrence Modes Only) 37
Edit Name (Optional) 38
Clear Formula 38
Data Transfer 39
Data Transfer 39
Write Reports 39
Read Setup 40
Write Setup 40
Update Firmware 41
Write Activity Log. 41
Set Units of Measure 41
Frequently Asked Questions 41
How is a Flush System Configured? 41
How is a Non-Flush System Configured? 41
Eclipse Pumpstands with Flush (up to 6 pumps) 42
Orion 2 Pumpstands (up to 6 pumps) with Flush and an Orion 2 P.I. board 42
Orion Pumpstands (up to 8 Pumps) with Flush and an 8-Pump P.I. board 42
What if Auto Formula Select Doesn't Work? 42
Formula Worksheet 43

6 Installer Menus: Transfer Setup Files with USB Flash Drive

Formula Editor Setup File Transfer 45
Key Functions 45
Installer Password and Access to Data Transfer Menu 45
Read Setup (transfer a setup file from USB flash drive to a controller) 46
Calibrate Pumps 46
Prime Pumps 46
Additional Data Transfer Information 46
Language Files 46

7 Reports

TOTAL ECLIPSE Controller Reports 47
Sample Controller Reports 47
PC-Based Formula Editor Summary Report 53

8 Troubleshooting & Specifications

Troubleshooting Basics 55
Confirm Correct Pump Calibration and Formula Programming in Controller 55
Confirm J1 and J2 Cable Integrity 55
Pump Run Order 55
Flush Manifold Operation 55
Troubleshooting Guide 56
Load Count or Pump Run Errors 57
Ordering Information – Controller and Accessories 57
Specifications 58
Limited Warranty 58
Limitation of Liability 58

Index

1
TOTAL ECLIPSE System Overview



The TOTAL ECLIPSE Chemical Management System uses technological advances to create an innovative system that adapts to the electronic and language needs of global clients. The easy-to-read, seven-line screen displays plain-text formula names, customized by language and customer. Formulas and controller setups can be programmed at the controller or with Formula Editor computer software and uploaded via USB flash drive (16 GB or smaller) to each controller. Reports on product usage, costs per formula, system settings and diagnostics are easily downloaded to the USB flash drive and viewed or imported into various financial software.

The TOTAL ECLIPSE Controller is an integral part of the TOTAL ECLIPSE Chemical Management System, which also includes these components:

- **Machine Interface** – Accepts washer signals and converts them to safe, low-voltage inputs.
- **Pump Module** – Provides product transfer to the wash machine. The TOTAL ECLIPSE Controller is compatible with any Nova Controls modular pumpstand.
- **Flush Manifold (optional)** – Available for water flush chemical transfer applications.

Designed for maximum versatility in OPL or large laundry wash machines, selectable operating logic allows operation with trigger signals from fully-programmable washers or with manually triggered signals (or cycle time extenders) from non-programmable, fixed-time washers.

Formula Editor

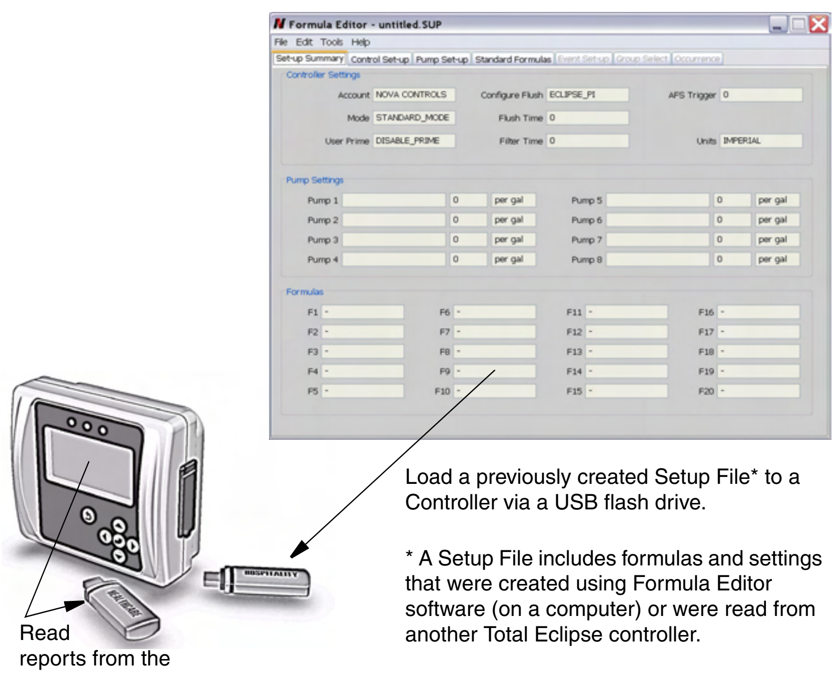


Figure 1 Formula Editor, Set-Up File Summary Tab, Saved to USB Flash Drive

Formula Editor software reduces installation time and cost by allowing an off-site technician to create a set of efficient and cost-effective settings and formulas on a personal computer.

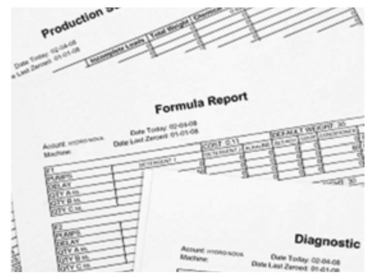
An installer can load these Setup Files (via a USB flash drive) to multiple TOTAL ECLIPSE controllers, either at the distribution center or during installation.



With the easy-to-use Formula Editor, up to 20 industry-specific formulas can be quickly created and managed as part of a cohesive chemical program.

Features

- **Maximum Formula Power –** Up to 20 different formulas let you tailor your chemical requirements to each wash classification. Program the controller via the keypad or upload previously programmed formulas and settings from a USB flash drive.
- **Eight Pump Capability (including Flush) –** Up to eight pumps, each with three product amounts (A, B, and C) and a delay, may be connected. The maximum product amount is 99.99 oz. (2999 ml.).
- **Compatibility –** Use with components from earlier Nova Controls laundry systems or adapt to future updates by adding modular components and loading updated software at the customer's site.
- **Easiest Operation –** User-friendly, large screen display offers seven lines of text and customized formula and pump names. Setting, formula and production information are retained even when controller is powered off.
- **Language Options –** Select either English or Spanish text for the controller (and for Formula Editor). All operating and programming menus are in the installer-selected language.
- **Pump and Formula Names –** Add names to the pre-numbered pumps and formulas to help the operator choose the correct formula. Formula and pump names can be in a different language than the controller's primary menu language, offering the ability to tailor formula names to the operator's primary language.



- **Data Reporting –** Reports include: Productivity Report (total logged load counts, weights and chemical costs by formula); Formula Report (formula setups with pump amounts and delays); Settings Report (controller settings, except formulas) and Diagnostic Report (amounts pumped, number of User Primes).
- **Auto Formula Select (AFS) –** When used with a fully-programmable, microprocessor-controlled washer, the washer uses a timed signal to automatically select the chemical formula.
- **Two Calibration Methods –** Calibrate pumps by time or volume to accommodate different sizes of pumps and installation configurations.
- **Flush Interlock –** Optional flush manifold (with flow switch) shuts off pumps if water flow falls below 0.65 gallons per minute (GPM).
- **Security –** Formula programming and data reporting are password-protected. A real-time clock is set with a date and time stamp upon startup.

Principle of Operation

See Figure 2"TOTAL ECLIPSE Chemical Management System (pumpstand may vary)" on page 3.

The **Machine Interface (MI)** receives supply signals from the laundry machine at pre-determined times in the wash formula. The MI sends these signals to the **Controller.** The controller functions are governed by the Operation Mode selected, the features enabled, and by the formula rules. In most modes, the laundry operator can change the formula or load size, according to the load type. The controller activates the dispenser (**Pumpstand**) to inject specific product(s). (Typically, there should be at least three "supply signals" from the laundry machine for complete automatic control of each product.) The MI, which is installed outside the laundry machine control wiring area, automatically adjusts for supply signal voltages ranging from 24-240VAC or 22-24VDC. The Pumpstand operates on 115VAC / 60 Hz, 220VAC / 60Hz, or 230VAC / 50 Hz. It also supplies low voltage power to the Controller and provides an interface for the optional Flush Manifold.

The **Optional Flush Manifold** provides an alternative means of chemical transfer to the laundry machine. In flush configuration, the TOTAL ECLIPSE system is a complete, integrated water flush chemical dispensing system.

System Diagram

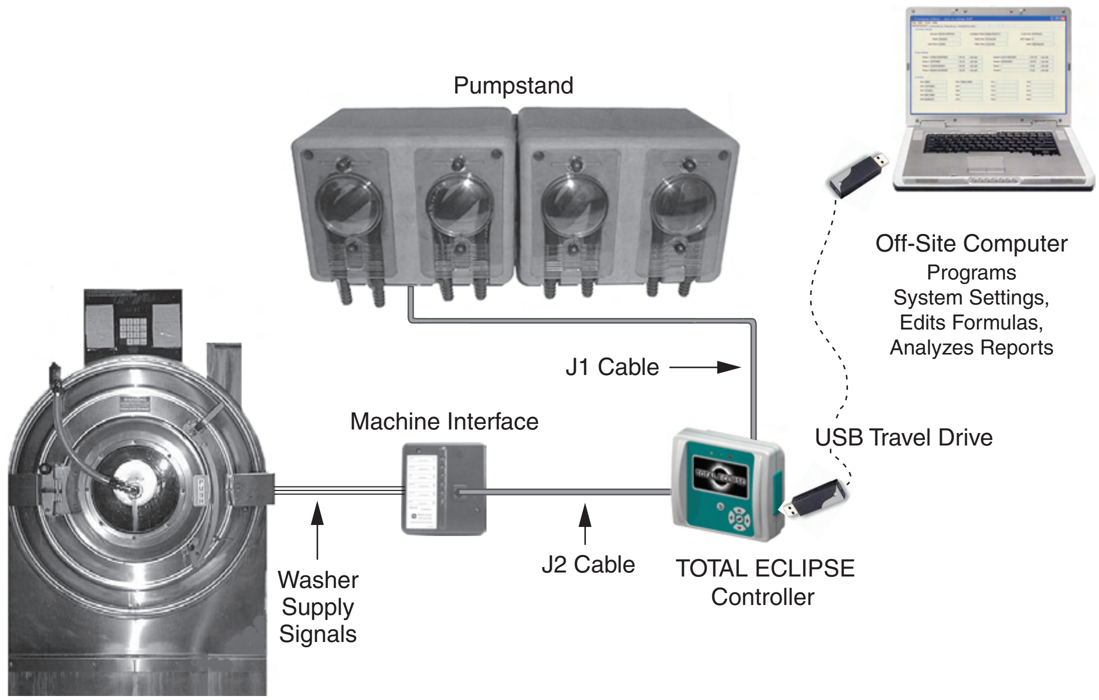


Figure 2 TOTAL ECLIPSE Chemical Management System (pumpstand may vary)

Modes of Operation

Overview

Each operating mode has a different combination of rules for creating and editing settings. These rules affect subsequent dispensing. When selecting a Mode of Operation, consider both the type and capabilities of the laundry machine and the variety of linen to be washed. Use the following table to compare modes. Read the following section for a detailed explanation of each Operating Mode and the accompanying feature.

Table 2-1 Operating Modes Overview

Operating Mode	Uses Formulas	Count Pump	Cycle Time	AFS[1]	8-Pump Control	Non-Flush, Simultaneous Pump Starts
Standard	Yes	Yes, selectable	Yes	Yes	Yes[2]	Up to 6 pumps,
Relay	No[3]	Pump 1 - Fixed	No	No	No	Up to 6 pumps,
Event[4]	Yes	No	No	No	Yes	Up to 3 pumps
Group	Yes	Yes, selectable	Yes = Group Interlock time	No	Yes	Up to 6 pumps, if two Groups simultaneously triggered
Occurrence[5]	Yes	Yes, selectable	Yes	No	Yes	Up to 3 pumps

[1] AFS is intended for use with fully-programmable, microprocessor-controller laundry machines.

[2] 8-Pump control is allowed, but pumps 3 and 7 are linked to each other, as are pumps 5 and 8 linked to each other.

[3] Default Load Weight is used in Summary Report calculations; Pump Amounts and Delays are ignored.

[4] Event Mod is designed to work with fixed-cycle washers.

[5] Occurrence Mode is best suited for laundry machines in which trigger signals do not have specific functions.

Standard Mode of Operation (default)

Preferred for most North American installations, Standard Mode allows the operator to quickly select a formula from a list of formulas. A formula can include up to 8 pumps, each with three possible programmable amounts (**A**, **B** and/or **C** amount). Each washer trigger signal notifies the corresponding pump to dispense the set amount(s) of product for that pump (i.e., Trigger 1 starts pump 1, trigger 2 starts pump 2, etc.). All pump amounts and delays are based on the currently selected formula. Non-flush systems can start up to six (6) pumps simultaneously.

Standard Mode is the only mode that features Auto-Formula Select via the AFS Trigger. When using an 8-pump P.I., this mode links pumps 3 and 7 to each other and links pumps 5 and 8 to each other. See Also: *"Formula" on page 7* for dispensing rules and exceptions.

Relay Mode of Operation

Relay Mode is designed for use with programmable wash machines and allows the washer's trigger signals to directly control the amount of chemicals pumped. Pumps run for the duration of the trigger signal, after being qualified by the Signal Filter Time. Trigger 1 runs pump 1, trigger 2 runs pump 2, etc. Relay Mode does not use the formula settings, other than Default (or actual) Load Weight, for reports. It does not use Cycle Time.

If Flush is enabled in Relay Mode, any pumps attempting to run simultaneously will automatically be run in a queue with a 2 second pre-flush between each pump run and the post-flush after all queued pumps have run.

To use Relay Mode

1. Go to Installer Menu > Initial System Setup > Operation Mode and select **Relay Mode**.
2. Go to Installer Menu > Installer Service > Service Pumps > **Pump Calibration** to calibrate pumps.
3. Go to Installer Menu > Program Formulas > F01 > Set Default Weight and set a **Load Size** for F01 (Formula 1). No other programming is needed.

Event Mode of Operation

The Event Mode option allows automatic operation of washers that offer no supply trigger connections, such as fixed-cycle washers. Product dispensing is paced by machine events, rather than fixed-time as in Standard Mode. Four trigger signals are used. The typical connections are:

- Trigger 1 = Power **ON** signal, Washer Door Switch (Wash Cycle Indication)
- Trigger 2, 3 = Hot, Cold Fill (Triggers Pumps)
- Trigger 4 = Drain (Concludes an Event and allows another Event to occur)
- Triggers 5 and 6 are not used in this mode.

Trigger 1 **ON** indicates the beginning of a wash cycle and Trigger 1 **OFF** indicates the end of a wash cycle. Trigger 1 might be connected to the washer's Power **ON** signal or to a washer door switch. An Event occurs when a trigger signal is detected on Triggers 2 or 3. A subsequent "**ON**" and "**OFF**" of Trigger 4 allows the next Event to occur. If Trigger 1 is **OFF**, any pumps waiting in the queue are ignored and the cycle is reset.

Event Mode Rules

Up to 16 Events can be programmed, and up to 3 pumps (with **A**, **B** and/or **C** amounts) may be added to an Event. A pump can only be used once per Event, but the same pump can be used in multiple Events. If a pump is used in more than one Event, the **A** amount dispenses in the first Event in which the pump is used, the **B** amount dispenses in the second Event in which the pump is used, and the **C** amount dispenses in the third (and all subsequent Events) in which that pump is used. If there is no **C** amount, there will be a maximum of two (2) pump runs per wash cycle for that pump.

No Count Pump is used in Event Mode, nor is Cycle Time used. Non-flush systems can start up to three pumps simultaneously.

Group Mode of Operation

In the Group Mode option, the six trigger signals are placed into four, pre-defined groups (see the following table). Between 0- 3 pumps may be assigned to each group. A pump may be used in more than one group. The trigger signals determine which group of pumps dispense their programmed formula amounts, and in which order. All pumped amounts and delays are based upon the currently selected formula.

Group	Trigger Signal Input(s)
Group 1	1 and/or 2
Group 2	3 and/or 4
Group 3	5
Group 4	6

Group Interlock

If a pump group is set to run more than once per wash cycle, Group Interlock must be **OFF** and all pumps within the group must fully run to allow repeat activation of the group when it receives the trigger signal.

When Group Interlock is **ON:** A pump group can only run once per wash cycle (regardless of the number of triggers received) and there is a 5-minute lockout period after the count pump runs. During lockout, trigger signals are ignored. When Group Interlock is **ON**, the wash cycle ends either five (5) minutes after the count pump has run or when the programmed Cycle Time is reached, whichever occurs first.

When Group Interlock is **OFF:** A pump group can run more than once per load. When Group Interlock is **OFF**, the cycle ends immediately after the count pump has run or when the programmed Cycle Time is reached, whichever occurs first.

Non-Flush systems can run up to 6 pumps simultaneously if two groups are triggered simultaneously and each group has three pumps assigned.

Occurrence Mode of Operation

Occurrence Mode is best suited for washers in which trigger signals do not have a specific function. Any qualified trigger (1–6) will start an Occurrence. Each new qualified signal, on any trigger, signifies a new Occurrence within the current wash cycle; triggers occurring with two seconds of each other are considered one Occurrence. The first trigger starts Occurrence 1, the second trigger starts Occurrence 2, and so forth.

Up to 16 occurrences can be programmed, with up to 3 pumps dispensing per occurrence. All pumped amounts and delays are based upon the currently selected formula. If there is no pump assigned to an occurrence, nothing is pumped and the occurrence acts as a “space holder.”

Occurrence Mode differs from Event Mode in the following ways:

1. The wash cycle begins when the first pump runs.
2. A qualified signal from any trigger signal initiates an Occurrence.
3. There is no specific wash cycle indication. A wash cycle ends after the Count Pump runs, or when the programmed Cycle Time is reached, whichever occurs first.

Important Note	The last pump to run in Occurrence Mode should always be the Count Pump.

Features and Options

The following features and options, which may be set during the Initial System Setup, affect the pump dispensing sequence in conjunction with the chosen mode of operation.

Auto Formula Select (AFS)

AFS is only available when operating in **Standard Mode**. AFS allows the installer to choose a trigger signal number that will select and run any programmed formula with a timed signal. The AFS signal does not need to be qualified by a Filter Time when it is selecting a formula. After a formula has begun, the AFS Trigger signal may also be used as a pump trigger, which must then be qualified by the Filter Time before the pump will run.

The AFS trigger cannot utilize a trigger signal that starts or ends a formula cycle, (first pump triggered starts the formula cycle and the count pump ends the formula cycle). The AFS trigger signal must occur before a wash cycle begins or after a wash cycle has ended, not while a formula is running.

The washer supply signal must be programmed for a total of 2 seconds multiplied by the desired formula, for example: Formula 1 = 2 second signal — Formula 2 = 4 second signal — Formula 3 = 6 second signal.

When AFS begins, the controller displays “SELECTING FO[#]" Every two seconds, the next formula number displays, until the signal time has been reached, at which point the originally selected formula again displays (e.g. if the washer supply signal is set for 20 seconds, F10 WHITE SHEETS is selected to run and displays on the Home Screen).

Count Pump

In all Modes of Operation (except **Event Mode)**, a count pump is used to determine when the wash cycle has completed. The system records a complete wash cycle after all programmed amounts for the count pump have been dispensed. In **Event Mode**, a sequence that begins with Trigger 1 **ON** and ends with Trigger 1 **OFF** indicates a complete wash cycle and counts as one load. In **Relay** Mode, the count pump is fixed as Pump 1. In **Standard**, **Occurrence** and **Group** Modes, the default count pump is the highest pump for which an amount is programmed. In these three modes, the default count pump may be overridden by the installer, who may select a count pump other than the default.

The count pump can correctly register a load only if the following three conditions are met:

- At least one amount is programmed for the count pump.
- The count pump must be the last pump to run.
- The count pump is requested to run for all programmed amounts (**Standard**, **Group** or **Occurrence** modes). If two or three amounts have been assigned to the count pump, it must be requested to run at least two or three times, respectively.

Cycle Time (Standard, Group or Occurrence Modes ONLY)

Cycle Time acts as a backup shut off to insure that the cycle ends and product is not wasted in the event of a formula run error. At the Cycle Time limit, the wash cycle stops, even if the count pump has not yet run. In **Group Mode**, the setting for Cycle Time is also used as the Group Interlock time.

Cycle Time should be set to at least 5 minutes longer than longest estimated time that any wash cycle will run. Cycle Time can be set to 00 (**OFF**), or between 30 – 99 minutes. The default is 00 (OFF). For loads (such as a soak load) that typically last longer than 99 minutes, it is recommended that the Cycle Time be set to **OFF**.

Important Note ✍	If Cycle Time is set to OFF, the count pump must run in order to end the wash cycle.

Flush Operation (for a Flush-compatible P.I. ONLY)

Flush prevents incompatible chemicals from combining. When a flush-compatible Pump Interface (P.I.) is selected during Initial Set-up, flush can be enabled by setting Flush Time to 1 - 99 seconds. If the Flush Time is set to zero (0), flush is disabled, even when using a flush-compatible P.I.

When Flush is enabled:

- Only one pump is allowed to run at a time. If there is a request for multiple pumps to run at the same time, a flush-enabled system causes each pump to run sequentially. See also *"Trigger Spacing and Pump Queue" on page 7*.
- A fixed, two-second pre-flush occurs before the pump dispenses.
- Flush occurs continuously for the entire time the pump is dispensing.
- Flush continues (for the amount of time set in Flush Time) after the pump concludes dispensing.

Non-Flush Operation

Allows from three to six pumps to run simultaneously, depending upon the Mode of Operation selected.

Formula

A formula specifies which pump runs, and in what order pumps run, when a trigger signal is received. In Modes of Operations that use formulas (**Standard, Event, Group and Occurrence**), a pump may be set to dispense multiple times, with up to three different amounts (identified as Amounts **A**, **B** and **C)** and a delay. A pump will only dispense when at least one amount (not zero) is set for that pump. A formula may also establish a default load weight, a name that is added to the formula number and, in some Operation Modes, the Count Pump number.

Formula Rules

If only the **A** amount is programmed for a pump in a formula, the first request results in Amount **A** dispensing. Additional requests within the same wash cycle are ignored.

If only **A** and **B** amounts are programmed for a pump in a formula, the first request results in the dispensing of Amount **A**. The second request results in the dispensing of Amount **B**. Additional requests (after the second request) are ignored.

If all three amounts (**A**, **B**, and **C)** are programmed for a pump in a formula, the first request results in the dispensing of Amount **A**. The second request results in the dispensing of Amount **B** and the third request results in the dispensing of Amount **C**. Subsequent requests (after the third) result in the dispensing of Amount **C**. The dispensing sequence is reset when the wash cycle ends.

Trigger Spacing and Pump Queue

Pumps can be triggered to run in several different ways, depending on the Mode of Operation. If a trigger for a pump to run occurs and the pump is already running, the trigger is ignored. In **Occurrence**, **Event** or **Group** mode, this could result in not running some or all of the pumps called for by a trigger signal.

Important Note ✍	It is imperative that the installer allow plenty of time between triggers to insure that a pump (or group of pumps) will run for each of its triggers.

In a Pump Interface (P.I.) with Flush enabled, different pumps that attempt to run simultaneously are placed in a pump queue and then run in sequence. A pump is added to the queue whenever there is a valid trigger for it, as long as it is not currently running and is not already in the queue. The queue allows for up to seven (7) pumps (other than the currently running pump), to be "queued up" (waiting to run in sequence).

Trigger Signal Filter Time

Signal filter time is the amount of time that a trigger must remain continuously ON before being recognized as a qualified trigger and starting a pump. The factory default time is two seconds. Longer times (10, 20, 30, 60 or 90 seconds) may be set if washers present problems, i.e., unreliable signals falsely triggering pumps. The Auto Formula Select (AFS) signal does not use a signal filter time.

8-Pump Interface

Regardless of the selected Mode of Operation or the Flush setting, pumps 3 and 7 and pumps 5 and 8 cannot run simultaneously on an 8-Pump Interface. They can be requested to run at the same time, but they will run sequentially, based on the Mode of Operation, pump order or delays set.

In **Standard Mode**, pumps 3 and 7 are triggered by the same trigger signal, Trigger 3. (Pumps 5 and 8 are also triggered by the same trigger signal, Trigger 5.) If Amounts **A**, **B** and **C** are programmed for both pumps, on the first instance of Trigger 3, pump 3 Amount **A** will dispense and then pump 7 Amount **A** will dispense. On the second instance of Trigger 3, pump 3 Amount **B** will dispense and then pump 7 Amount **B**, and so on.

Acronyms and Abbreviations

The following is an alphabetized list of Acronyms and Abbreviations (with definitions) that are found in the TOTAL ECLIPSE controller and/or in this Installation and Operating manual.

Acronym / Abbreviation	Definition
AFS	Auto Formula Select
CALIB	Calibration
E1	Event Number One
F01	Formula Number One
FAT32	Formatting Needed on USB Flash Drive
G1	Group Number One
GAL	Gallon
GPM	Gallons per Minute
ID	Identifying Number of Controller Firmware
INSTL	Installer (used in INSTL PASSWORD)
KG	Kilogram
LB	Pounds
L	Litres
LCD	Display Screen on TOTAL ECLIPSE Controller
.LNG	Total Eclipse Controller Language File
MAX	Maximum
MGR	Manager (used in MGR PASSWORD)
M.I.	Machine Interface
Min	Minutes
ML	Millileters
O1	Occurrence Number One
OZ	Ounces
P.I.	Pump Interface
P1	Pump Number One
P1A	Pump Number One, A Amount
.PROPERTIES	Formula Editor Language File
SAE	United States Units of Measurement (OZ., LB. GAL.)
SEC	Seconds
.SUP	Setup File (Formulas and Settings created using Formula Editor or a controller)
TRIG	Trigger Signal
VOL	Volume

2
Installation

WARNING ⚠	The TOTAL ECLIPSE controller is intended to be installed by a qualified technician only, in accordance with all applicable electrical and plumbing codes. DISCONNECT POWER to the wash machine and dispenser during installation and/or any time the dispenser cabinet is opened.

Note	This manual describes only the installation and programming of the TOTAL ECLIPSE Controller, which is a portion of the TOTAL ECLIPSE Chemical Management System. Please refer to the reference manual included with your pumpstand or upgrade kit for additional instructions. Electrical wiring connections for supply triggers are to be done inside the supply junction box. See *A."Supply Trigger Wiring" on page 10* for connection information.

Machine Interface Installation

WARNING ⚠	Keep Machine Interface and communication cable away from high voltage wires and relays. NEVER parallel the cable with high voltage lines.

1. Route MI signal wires through 1/2 inch knock-out on washer (within the wiring area). Use lock nut on MI 1/2 inch nipple to secure MI to washer.
2. Connect cable marked J2 into Machine Interface. Bundle excess J2 cable outside washer and connect other end to the connector labeled J2 on the rear of the Controller.
3. Connect cable marked J1 from the pump module to the connector labeled J1 on the Controller.
4. For additional cable strain relief, secure J1 and J2 cables to controller tie-down posts with tie wraps.

Note	The maximum distance for the J1 cable from the pump module to the controller is 75 feet. Standard lengths available are 15 and 30 feet. A coupler is available to join two cables together for longer distances. Cable runs longer than 75 feet require the use of break out boxes and hard wiring. Contact Nova Controls for details.

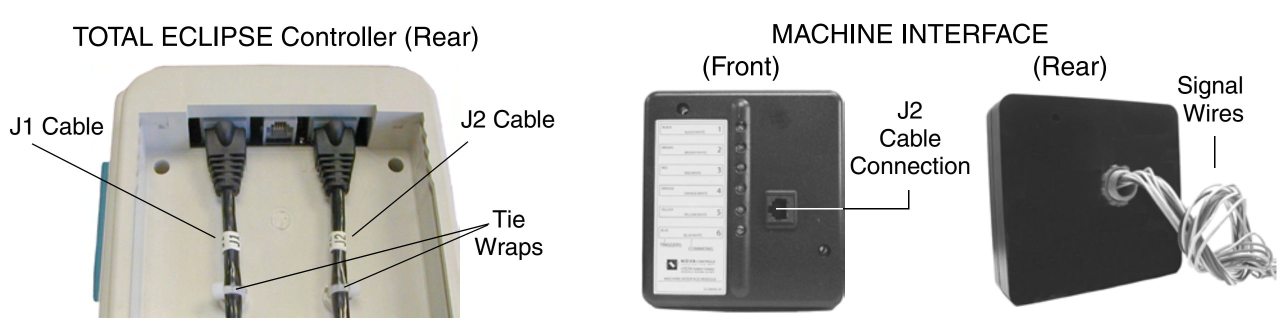


Figure 3 TOTAL ECLIPSE Controller Electrical Installation

Signal Wire Installation

The Machine Interface will work with any signal voltage between 24 – 240VAC or 22 – 24VDC.
With DC signals, polarity must be observed. Common is negative. The signals should be positive voltages.

CAUTION	Always verify all voltage sources with a meter.

A. Supply Trigger Wiring

1. Identify the washer supply signals. Check with technical service or with the washer manufacturer if you are not sure of the connections.
2. Identify the Mode of Operation to be used. Use appropriate terminal connectors to connect the signal wires to the Machine Interface wires, based upon the table below.

Trigger	Supply Signal	Signal Common	Connect by Operating Mode to:			
			Standard (US) Relay (US) *or*	Group (EU, Asia) *or*	Event (US, EU, Asia) *or*	Occurrence (US, EU, Asia)
Signal 1	Black wire	White/Black	Pump 1	Group 1	Washer "On" Signal	Only 1 or 2 triggers need to be connected because any signal, on any trigger, is an occurrence. Connect one trigger to the Drain Valve Signal OR to the Hot & Cold water valves, if the drain valve solenoid is not accessible.
Signal 2	Brown wire	White/Brown	Pump 2	Group 1	Washer Hot / Cold Signals	
Signal 3	Red wire	White/Red	Pump 3	Group 2	Washer Hot / Cold Signals	
Signal 4	Orange wire	White/Orange	Pump 4	Group 2	Washer Drain Valve Signal	
Signal 5	Yellow wire	White/Yellow	Pump 5	Group 3	Not used	
Signal 6	Blue wire	White/Blue	Pump 6	Group 4	Not used	

Trigger Signal Wiring Notes

- If one or more pump signals are not used, they do not need to be connected.
- If you are triggering more than one pump from a single signal, connect all of the Machine Interface pump signal wires for those pumps to that signal.
- Wire nut unused wires. If washer has a single common, wire nut all commons together.
- Each of the 6 LEDs on the MI lights up when the corresponding valid signal is received.

TOTAL ECLIPSE Controller Mounting

The TOTAL ECLIPSE controller may be mounted either horizontally (such as on top of the washer) or vertically (such as on the front of the washer). Mount the unit using the self-adhesive strips provided. For added security, you may use nuts and allen bolts or other fasteners (provided) as is appropriate to the mounting surface (see *Figure 4 on page 11*).

1. Position the controller for easy access to the keypad and display screen.
2. Mark a mounting location that is on, or close to, the washer. Surface must be clean and dry.

3. Join the four velcro-style strips firmly together to form two pair.

4. Peel backing from one strip of each pair and place, adhesive-side down, in each recess on the mounting bracket. Press firmly for good adhesion.

5. Peel backing from opposite strips and press mounting bracket onto smooth, clean surface (use alcohol wipe, if needed) at marked location.

6. With cables connected, slide controller front down onto mounting bracket (controller back), guiding cables into slots and pressing down firmly until front and back snap into place.

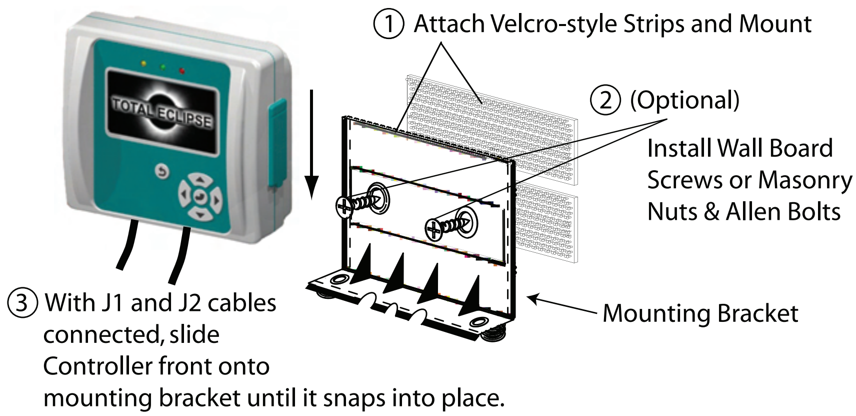


Figure 4 TOTAL ECLIPSE Controller Mechanical Installation

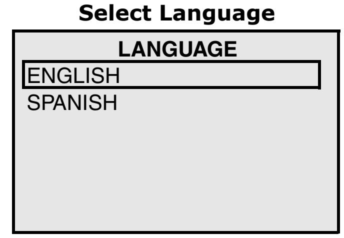
Set Operating Language, Date & Time on Start-Up

After all electrical, plumbing and mechanical installation is complete, apply power to the TOTAL ECLIPSE Controller. At the first power up, the LANGUAGE menu follows the splash screen to allow menu language selection.

Select one of the operating menu languages that are pre-installed in each controller (English or Spanish). Additional TOTAL ECLIPSE Controller operating menu language files may be available from the Hydro Systems website (www.hydrosystemsco.com) for download to a USB flash drive. Installing a new language from a USB flash drive replaces the Spanish menu language in the controller (English remains permanently installed).

Select Operating Language

Select Language



1. Move the selection box, using the **UP** or **DOWN ARROW KEYS**, until it frames your chosen language. (Optional) To replace the non-English language with a different language, connect a USB flash drive containing the downloaded languages to USB port “A” (the lower USB port on the controller’s right side). Available languages appear for selection.

2. Press the **ENTER KEY** to select the operating language and launch the DATE & TIME menu.

Change Language After First Power Up

1.Shut off power to TOTAL ECLIPSE by unplugging the J1 cable or shutting off pumpstand power switch. Settings and data are retained.

2.Connect a USB flash drive and restore power. The LANGUAGE menu appears. Select the operating language. Formulas and setup information (operating mode, calibration, etc.) are retained after a language change. Custom formula and pump names are not translated when a language is changed.

Set Date and Time

When the controller is powered up, the DATE & TIME menu displays information that was set at the factory. Change this to the current date and time at the installation, as this controls the data contained in reports.

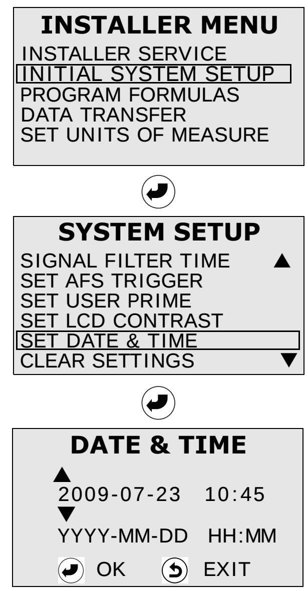
Once set, the date and time (real-time clock) are retained if the power is cycled off or during a power failure. The display is in ISO 8601 standard format, as defined below:

YYYY-MM-DD HH:MM

(Year-Month-Day Hour:Minute). The clock is a 24-hour clock (no AM/PM setting).

To adjust the date and/or time:

Set Date & Time



1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move the selection box to DATE & TIME and press **ENTER**. The DATE & TIME set screen appears. The first letter of the year is selected as the active digit, indicated by the double-arrow cursor ▲▼.
1. Change the active digit by pressing the **UP** or **DOWN ARROW KEYS**.
2. To move to the next digit, press the **RIGHT ARROW KEY**. To backspace, press the **LEFT ARROW KEY**.
3. When the correct date and time display, press the **ENTER KEY** to save the setting and launch the TOTAL ECLIPSE Home Screen. See *"Home Screen" on page 15* for more information.
4. To exit this menu without saving changes and move to the Home Screen, press the **EXIT KEY**. The display automatically exits the DATE & TIME menu and displays the Home Screen if no keys are pressed for 15 seconds.

Change the DATE & TIME After Initial Power-Up

Access the DATE & TIME menu via the **Installer Menu > Initial System Setup > Set Date & Time Menu**.

OR

1. Shut off power to the TOTAL ECLIPSE by unplugging the J1 cable or shutting off pumpstand power switch. Settings and data are retained.
2. Restore power and set as described in *"Set Date and Time"* at top of page.

Overview

The TOTAL ECLIPSE Controller's backlit screen displays seven lines of text, with onscreen prompts, in the language selected by the installer. A green LED indicates power is on. The six-button keypad is used by the machine operator for formula selection and modification during normal operation and by the installer during installation, service and data transfer.

The USB port accepts a Type-A USB flash drive (16 GB or smaller). It is used to read and write formulas and settings (called Setup Files) between the flash drive and the controller. It is also used to write Summary Reports from the controller to the USB flash drive. In addition, it may also be used to install future firmware updates.

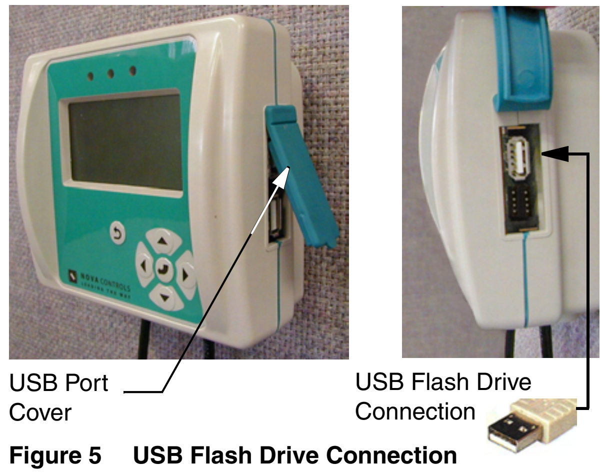


Figure 5 USB Flash Drive Connection

Menu Navigation

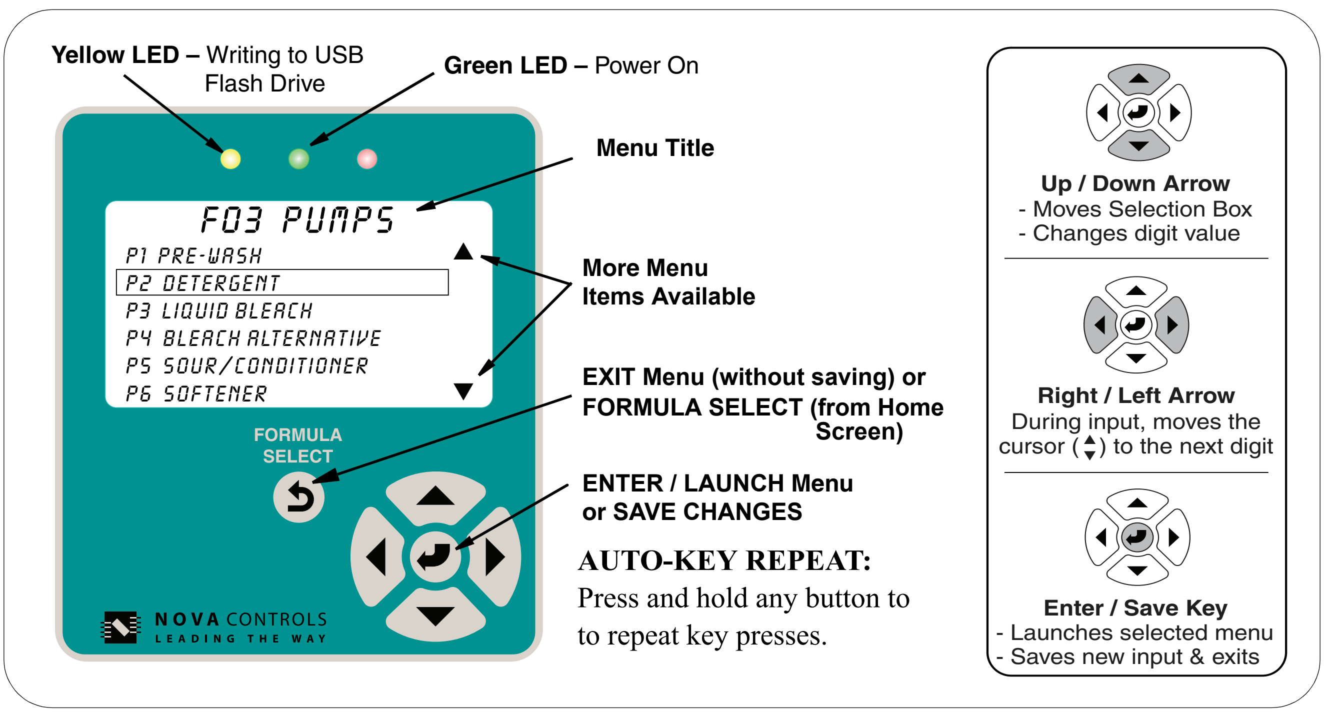


Figure 6 TOTAL ECLIPSE Display and Keypad

Note	
	Press the **ENTER** key to **save** a new setting and return to a previous menu. Press the **EXIT** key to **cancel** changes without saving, and return to a previous menu.

Keys and Menu Symbols

Button / Symbol	Operator Menus	Installer Menus
ENTER a Menu/ OK / START / STOP	• Select Menu Item. • Save Changes. • Start or Stop Prime or Flush.	• Save Changes and exit menu. • Select an item with screen prompt "OK." • Start or Stop an Action.
FORMULA SELECT / EXIT Menu (without saving changes)	• Jump to select formula from list of formulas • Return to Previous Menu (changes not saved). • Press and HOLD to return to Home Screen (changes not saved).	• Press to Exit to Previous Menu (changes not saved). • Press and HOLD to return to Home Screen (changes not saved).
UP / DOWN ARROWS	• Move Selection Box to menu item. • Change Load Weight (change numbers). • Enter Password (change numbers).	• Move Selection Box to menu item. • Edit numbers (0-9), letters (A-Z), hyphen (-), underscore (_) or space.
RIGHT & LEFT ARROWS	• Move Cursor to next or previous digit.	• Move Cursor to next or previous digit.
Selection Box	• Shows Formula to select. • Shows menu item to launch.	• Shows menu to launch or setting selected. • Shows pump or formula to edit.
Arrow Above & Below a Digit = Cursor ▲ 2 ▼	• Indicates cursor position and editable digit.	• Indicates cursor position and editable digit.
F03 PROS ▲ F04 CURTAINS F05 TOWELS F06 BED LINEN ▼ **Arrows to Right of Menu = Scroll for More Items**	• If more than six menus exist within one screen, these arrows appear. • Move Selection Box up or down to see additional items. Arrow disappears when there are no more items in a direction (i.e., you reach the top or bottom of the list).	• If more than six menus exist within one screen, these arrows appear. • Move Selection Box up or down to see additional items. Arrow disappears when there are no more items in a direction (i.e., you reach the top or bottom of the list).
Pumps	• Home Screen Pump Icon.	• Home Screen Pump Icon.
Trigger Signals	• Home Screen Trigger Signal Icon.	• Home Screen Trigger Signal Icon.
Pump Running (flush disabled)	• Moving black bars = Dispensing or priming (flush disabled).	• Moving black bars = Calibrating or priming (flush disabled).
Flushing	• Steady black = Flushing only (flush enabled).	• Steady black = Pre-flush before pumping.
Pump & Flush Running	• Moving white bars = Dispensing or Priming (flush enabled).	• Moving white bars = Calibrating or Priming (flush enabled).

Operator Menus allow the Operator to:

- ❑ View Current Formula Information
- ❑ Select the Formula to Run
- ❑ View or Change Load Weight (One Cycle)
- ❑ Stop Pumps in an Emergency
- ❑ Prime Pumps (if enabled)
- ❑ Manually Flush
- ❑ Write Manager Reports (password protected)

Installer Menus allow the Installer to:

- ❑ Perform Initial System Setup
- ❑ Program and Name Formulas
- ❑ Calibrate and Name Pumps
- ❑ Set Mode of Operation
- ❑ Configure Flush
- ❑ Perform Periodic Service and Record Product Costs
- ❑ Transfer Data
  (Write Reports from Controller to USB flash drive)
  (Transfer Formulas & Settings between Controller and USB flash drive)

4
Operator Menus

Home Screen

The Home Screen appears after the controller language, date and time have been set (see *"Set Operating Language, Date & Time on Start-Up" on page 11* for more information) or whenever the controller is active.

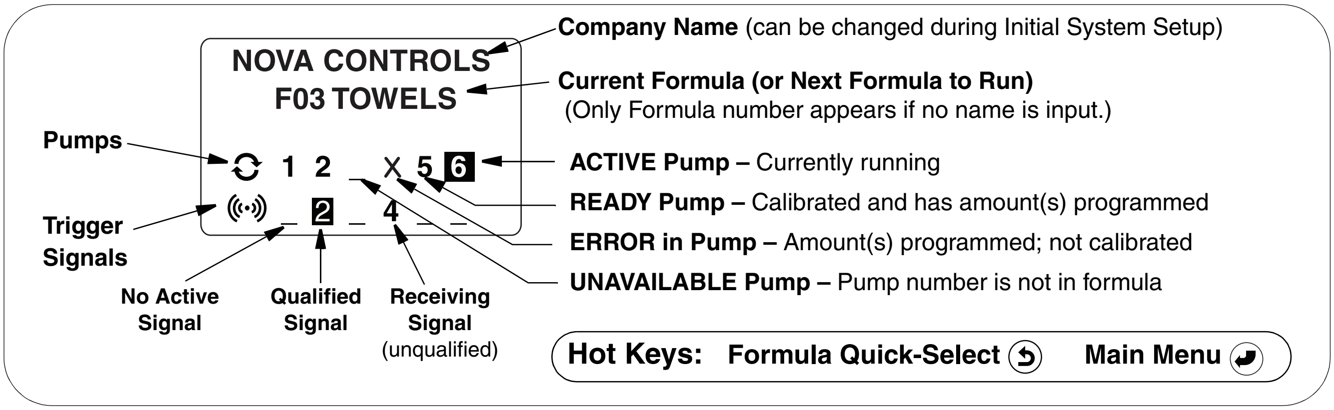
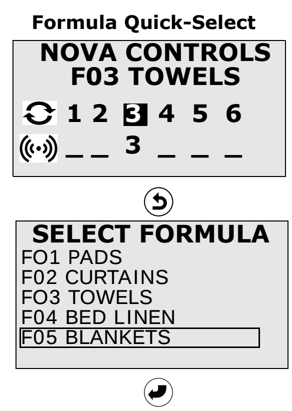


Figure 7 Home Screen

Formula Quick-Select



To prevent data logging errors, the operator must select a formula before washer operation starts and all programmed pumps must be triggered during the cycle.

1. From the **Home Screen**, press the **EXIT / FORMULA SELECT** key.
2. Press the **UP** or **DOWN ARROW** to move selection box to the correct formula. All formulas appear, but only formulas with programmed pumps are selectable.
3. Press the **ENTER** key to select the formula and return to the **Home Screen**, which will display the new formula by name (if input), or number.
4. (Optional) Press **ENTER** to reach the load size setting.

Main Menu

To reach the Main Menu from the Home Screen, press any key (*except* the **EXIT** key).

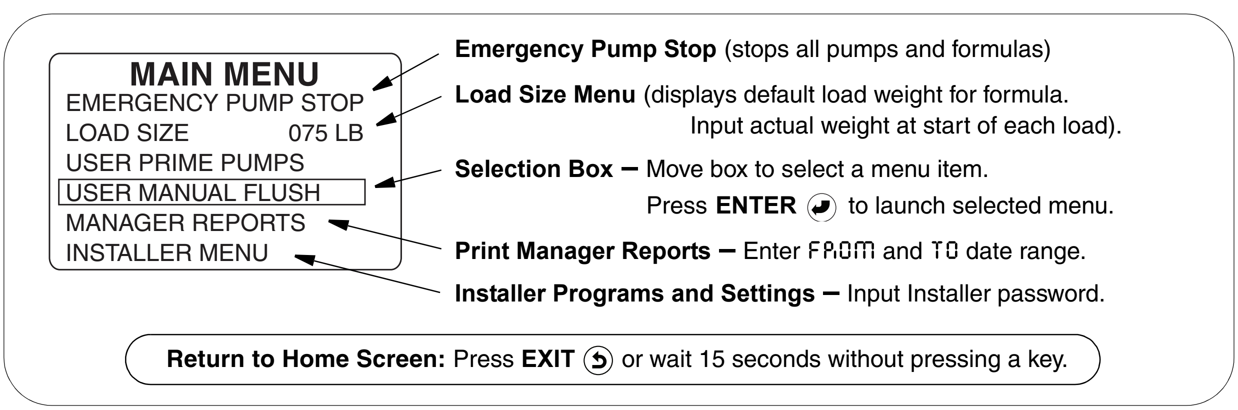


Figure 8 Operator Main Menu

Operator Menu Tree – All Menus

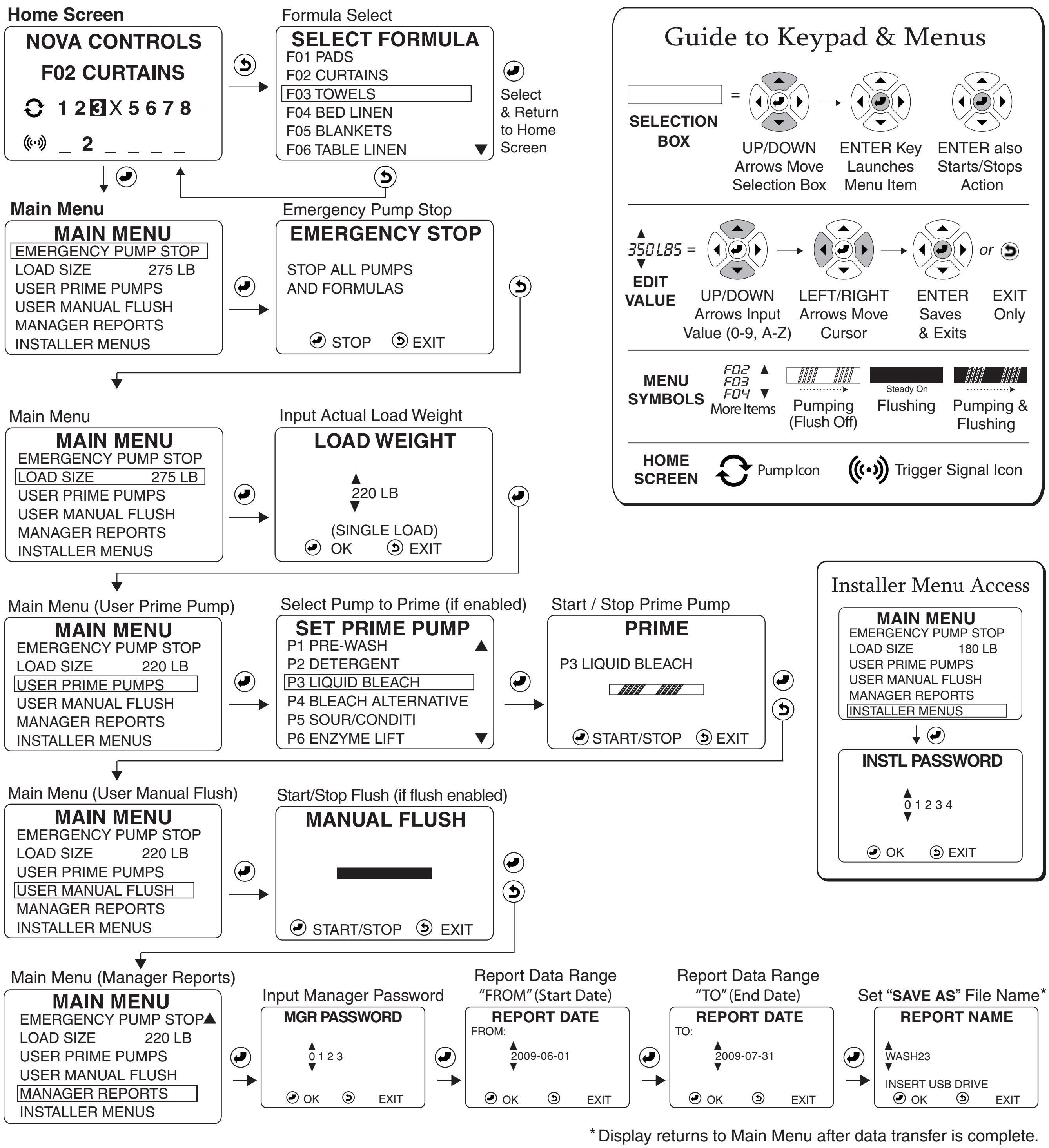


Figure 9 TOTAL ECLIPSE Operator Menus

Operator Main Menu

Power Save Note	If the controller is idle (no key presses or cycle activity) for 15 seconds, the display reverts to the Home Screen. If the controller is idle for 15 minutes, the Power Saver feature shuts off the display backlight. Any key press returns the controller to normal operation.

NOVA CONTROLS
F01 PADS
1 2 3 4 5 6
_ _ _ _ 5 _

From the **Home Screen**, press any **ARROW** (except **EXIT**) to reach the MAIN MENU.

MAIN MENU
EMERGENCY PUMP STOP
LOAD SIZE 075 LBS
USER PRIME PUMPS
USER MANUAL FLUSH
MANAGER REPORTS
INSTALLER MENU

In the MAIN MENU, the operator can: Activate the emergency pump stop; Input load size (if different from default); Prime pumps or manually flush (if enabled); Print Manager Reports (password protected) and access the password-protected INSTALLER MENU, which includes programming, setup and maintenance menus.

Emergency Pump Stop

EMERGENCY STOP
STOP ALL PUMPS
AND FORMULAS
STOP EXIT

Stops all pumps and cancels the formula currently running.

1. From the HOME SCREEN, press **ENTER** twice to reach EMERGENCY STOP.
2. At the EMERGENCY STOP menu, press **ENTER** to stop all pumps and formulas or press **EXIT** to return to the MAIN MENU.

Change Load Size/Weight

For accurate data reporting, the operator should input the actual weight of each load, which overrides the default weight for that formula for a single load.

LOAD WEIGHT
175 LBS [KG]
SINGLE LOAD
OK EXIT

1. From the MAIN MENU, move selection box to LOAD SIZE and press **ENTER**. The LOAD WEIGHT input screen displays the default weight for that formula.
2. Change the active digit, indicated by the double-arrow cursor, by pressing the **UP** or **DOWN ARROWS.**
3. To move to the next digit, press the **RIGHT ARROW**. Set all digits.
4. When the correct load weight displays, press **ENTER** to save. To exit without saving changes, press **EXIT**.

User Prime Pumps (if enabled)

USER PRIME allows the operator to fill the intake tube after product pail or tube change. An animated progress bar indicates that prime is running. In a non-flush system, the display is black bars on a white background. In a flush-enabled system, the display is white bars on a black background.

If User Prime is set to ENABLE, the operator must stop prime. If the operator fails to stop Prime, it will stop after 10 minutes of keyboard inactivity. If User Prime is set to LIMITED [30 SEC], each pump can be primed for a total 30 seconds and the same pump cannot be primed again until a complete formula has run.

MAIN MENU
EMERGENCY PUMP STOP
LOAD SIZE 075 LBS
USER PRIME PUMPS
USER MANUAL FLUSH
MANAGER REPORTS
INSTALLER MENU

SET PRIME PUMP
P1 PRE-WASH
P2 DETERGENT
P3 LIQUID BLEACH
P4 BLEACH ALTERNATIVE
P5 SOUR/CONDITIONER
P6 ENZYME LIFT

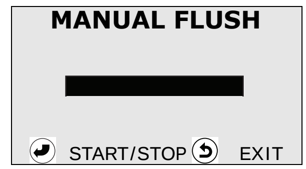
PRIME
P5 SOUR/CONDITIONER
START/STOP EXIT

1. From the MAIN MENU, move the selection box to USER PRIME PUMPS and press **ENTER**. The SET PRIME PUMP menu displays a list of available pumps (with names, if previously input or uploaded by the installer). If User Prime is not enabled in the Installer Menu, "DISABLED" displays (as the default setting).
2. Press the **UP** or **DOWN ARROW** to choose a pump to prime.
3. Press **ENTER** to reach the PRIME menu for the chosen pump.
4. Press **ENTER** to start prime. Press **ENTER** again to stop prime.
5. Press **EXIT** one time to select another pump to prime, or twice to return to the MAIN MENU.

User Manual Flush (if enabled)

Note	
Note ✍	To enable USER MANUAL FLUSH, the installer must select a flush pumpstand P.I. (see *2. 7.“Set Pump Interface” on page 32)* and set a Flush Time of greater that zero. The default Pump Interface setting is ECLIPSE P.I. with FLUSH TIME set to 00 = OFF. If either setting is incorrectly set, the controller is not set for flush operation and “DISABLED” displays.

USER MANUAL FLUSH allows the operator to activate the flush manifold solenoid valve and clear the line. An animated progress bar displays while flush is running. If Flush is enabled, and the user fails to stop Flush, it will stop after 10 minutes of keyboard inactivity.

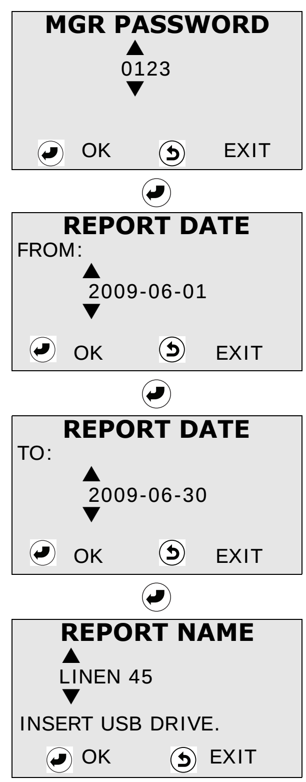


1. From the MAIN MENU, move the selection box to USER MANUAL FLUSH and press **ENTER**. The screen displays MANUAL FLUSH.
2. Press **ENTER** to start flush. A steadily-on black bar indicates that flush is occurring. (If flush and prime occur simultaneously, the black bar displays with white animation.) Press **ENTER** again to stop flush.
3. When flush is complete, press **EXIT** to return to the MAIN MENU.

Manager Report (with Manager Password)

Note	
Note ✍	Between 2-3 months of report data can be held in the controller’s memory, depending upon machine usage. Once the memory is full, new data will overwrite the oldest data. **It is recommended that Manager Reports are run every 30-60 days.**

Enter the Manager Password (default 0123) to save the Productivity Report to a USB flash drive. Report will contain data for the FROM date through, and including, the TO date



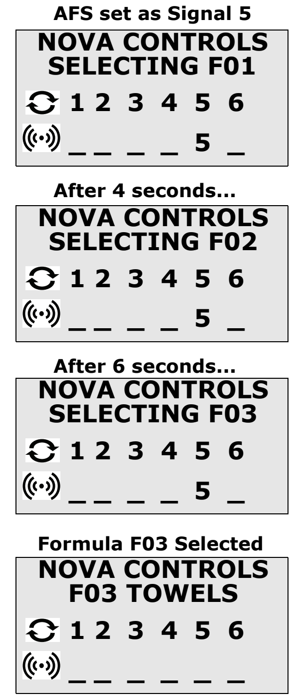
1. From the MAIN MENU, move the selection box to MANAGER REPORTS and press **ENTER** to launch the MGR PASSWORD input screen. The active digit, indicated by the double-arrow cursor, can be changed.
2. Change the active digit, indicated by the double-arrow cursor ▲▼, by pressing the **UP** or **DOWN ARROW**.
3. To move to the next digit, press the **RIGHT ARROW**. To backspace, press the **LEFT ARROW**.
4. After entering password, press **ENTER** to reach the REPORT DATE FROM: screen. Set the beginning date for report information (in the same manner as password input). The default is the last “FROM” date.
5. After entering the FROM date, press **ENTER** to reach the REPORT DATE TO: screen. Set the ending date for report information (in the same manner as password input). The default is the current date.
6. Press **ENTER** to reach the REPORT NAME menu. The last report input appears. Edit the name in the same manner as date. (If a **duplicate** report name already exists on your USB flash drive, a warning appears and asks if you want to overwrite the existing report. If you do NOT want to replace the existing report, press **EXIT** and input a different name.)
7. Connect a USB flash drive to the Total Eclipse USB port A and press **ENTER** to start the Report file save. While the report save is in progress, the controller’s yellow LED blinks. A light on the USB flash drive may also blink. When the report save is complete, the yellow LED stops blinking and the controller display returns to the MAIN MENU.

About Auto Formula Select (AFS) Operation

AFS allows an installer-chosen trigger to select any programmed formula with a timed signal from the washer. The washer controller shift supply signal must be programmed for a total of 2 seconds multiplied by the desired formula number. For example:

- Formula 1 is selected with a 2 second signal
- Formula 2 is selected with a 4 second signal
- Formula 3 is selected with a 6 second signal (etc.).

When AFS begins, the Home Screen displays "SELECTING F0[#]" Every two seconds, the next formula number displays, until the signal time has been reached. At that point, the selected formula displays (e.g. in the example to the right, the washer signal is set for 6 seconds, so F03 TOWELS is selected to run and displays on the Home Screen).



Note	There is no signal filter qualifying time for the AFS trigger. In the menus at the right, washer signal 5 was chosen as the AFS signal and is set for 6 seconds.

Access to Installer Menu

See *"Password Access to Installer Menus" on page 21*.

This page intentionally left blank.

5 Installer Menus: Programming & Service Using Controller Keypad

Installer Programming Overview

Initial system setup and formula programming can occur using the Controller keypad Installer Menus or by transferring Setup Files via a USB flash drive (see *Chapter 6 on page 45)*. This chapter describes setup, programming and service using the keypad. Settings that can ONLY be changed via the controller's keypad are marked with a small icon in this chapter (Language; Date & Time; Installer and Manager Password; Machine and Company Name; Pump Calibration). An Installer Password is needed to access Installer Menus, which are divided into six sub-menus. Each sub-menu contains additional menus. See *Figure 10 on page 22* for a graphic of Top Level Installer Menus.

CAUTION	If an Installer Password is input while a formula is running, the formula is aborted, the load is recorded as an incomplete load and the formula must be restarted upon exiting the Installer Menus.

Note	When using Installer Menus, the screen automatically returns to the Home Screen after 5 minutes of inactivity.

Key Functions

AUTOMATIC KEY REPEAT = Press and HOLD any key

ENTER a menu = **ENTER** key

EXIT to the previous menu without saving changes = **EXIT** key

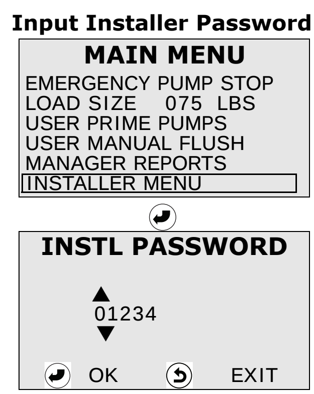
EDIT / INPUT a number (0-9), letter (A-Z), hyphen (-), underscore (_) or space = **UP / DOWN ARROW** keys

MOVE INPUT CURSOR backward or forward = **RIGHT / LEFT ARROW** keys or

MOVE Selection Box = **UP / DOWN ARROW** keys or

EXIT INSTALLER MENUS = Repeatedly press **EXIT** key

Password Access to Installer Menus



The factory default installer password is **01234**. For added security, change the password upon installation. See *2. 1."Edit Installer Password" on page 27*

1. From the MAIN MENU, move selection box to INSTALLER MENU (last item, after MANAGER REPORTS) and press **ENTER**. The INSTL PASSWORD menu displays.
2. Change the active digit, indicated by the double-arrow cursor, by pressing the **UP** or **DOWN ARROWS**.
3. To move to the next digit, press the **RIGHT ARROW**. To backspace, press the **LEFT ARROW**.
4. When the correct password displays, press **ENTER** to launch the INSTALLER MENU.

Minimum Programming Required for Standard and Relay Operating Modes

NOTE: These settings will produce a functioning controller, but will not give accurate reports or enable features.

Standard Mode U.S. (default) – (1) System Setup>Set P.I.; (2) Installer Service>Service Pumps>Calibrate Pumps; (3) Program Formulas>Select a Formula>Pump Settings>Select a Pump>Set Pump Amounts/Delay; (4–Outside US): Units of Measure>Metric.

Relay Mode U.K./Asia/Americas – (a) Initial System Setup>Operation Mode>Relay Mode; (4): Units of Measure>SAE or Metric.

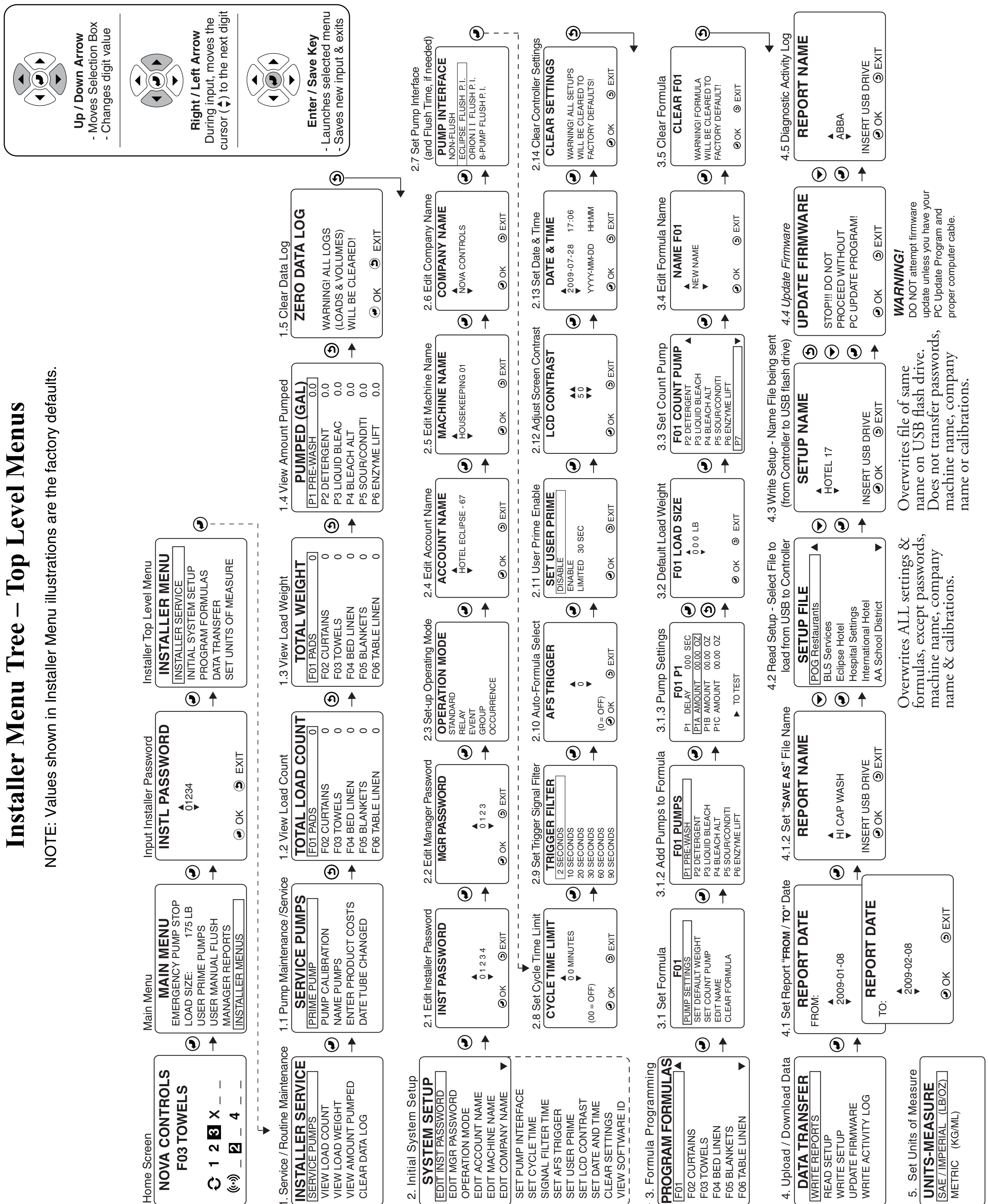


Figure 10 TOTAL ECLIPSE Installer Menus – Top Level

1. Installer Service

The INSTALLER SERVICE menu is used during routine maintenance visits or to prime or calibrate pumps during initial setup. Use after initial setup and programming,

Note	A pump name only appears with the pump number if a name was input or was part of a USB Setup File transfer.

1. 1. Service Pumps

1. From the INSTALLER MENU, select INSTALLER SERVICE and press **ENTER**.
2. From the INSTALLER SERVICE menu, select SERVICE PUMPS and press **ENTER**.

Service Pumps

INSTALLER MENU
INSTALLER SERVICE
INITIAL SYSTEM SETUP
PROGRAM FORMULAS
DATA TRANSFER
SET UNITS OF MEASURE

INSTALLER SERVICE
SERVICE PUMPS
VIEW LOAD COUNT
VIEW LOAD WEIGHT
VIEW AMOUNT PUMPED
CLEAR DATA LOG

SERVICE PUMPS
PRIME PUMP
PUMP CALIBRATION
NAME PUMPS
ENTER PRODUCT COSTS
DATE TUBE CHANGED

1. 1. 1. Prime Pump

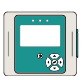
Prime the intake tube after product container or tube change. An animated progress bar indicates that prime is running. NOTE: In a flush system, the progress bar appears for two seconds as a solid black bar (indicating pre-flush), then adds white, moving bars when prime begins.

1. From the SERVICE PUMPS menu, select PRIME PUMP and press **ENTER**. The SET PRIME PUMP menu displays a list of available pumps (with names, if previously input or uploaded by the installer).
2. Press the **UP** or **DOWN ARROWS** to select a pump to prime.
3. Press **ENTER** to access the PRIME screen for the chosen pump.
4. Press **ENTER** to start prime (see above note re: animated progress bar).
5. Press **ENTER** again to stop prime.
6. Press **EXIT** once to select another pump to prime, or twice to return to the SERVCIE PUMPS menu.

Prime Pumps

SET PRIME PUMP
P1 PRE-WASH
P2 DETERGENT
P3 LIQUID BLEACH
P4 BLEACH ALTERNATIVE
P5 SOUR/CONDITIONER
P6 ENZYME LIFT

PRIME
P1 PRE-WASH
START/STOP EXIT



1. 1. 2. Calibrate Pumps

You must calibrate all pumps you will use in a formula, using the method best suited for the pump installed. Programmed formulas will not run if pumps are not calibrated. In Relay Mode, you must calibrate pumps in order to establish pump output.

Choosing a Calibration Method

- ▷ Use timed calibration when working with large displacement pumps, such as our large laundry pumps, double diaphragm air pumps, or when calibrating pumps for a flush installation.
- ▷ Use the volume method only for medium pumps (12 or 18 oz./min.) or (355 or 532 ml./min.).

View Calibration Settings

1. From SERVICE PUMPS, move selection box to PUMP CALIBRATION and press **ENTER**. The PUMP CALIBRATION menu displays.
2. Select VIEW CALIBRATION and press **ENTER** to see the current setting for each pump. The CALIB. IN OZ.[ML]/MIN list displays.
3. Press **EXIT** to return to the previous screen, then select a calibration method (time or volume) and proceed with calibration.

View Calibration Settings

PUMP CALIBRATION
VIEW CALIBRATION
CALIBRATE (TIME)
CALIBRATE (VOLUME)

CALIB. IN OZ/MIN

P1 PRE-WASH	02.1
P2 DETERGENT	11.3
P3 LIQUID BLEACH	04.2
P4 BLEACH ALTERN	02.5
P5 SOUR/CONDITIO	05.0
P6 ENZYME LIFT	0.0

Equipment Needed

You will need: Both calibration methods require a graduated measuring container to collect and measure the product. Be sure to place container at output to catch product before turning on pump. When using the timed method, the container must be able to hold the amount of product this pump can deliver in 20 seconds.

An animated progress bar indicates that prime is running. NOTE: In a flush system, the progress bar appears for two seconds as a solid black bar (indicating pre-flush), then adds white moving bars when prime begins.

Note	To obtain the most accurate measurement, do not run the output tube through a flush manifold when measuring the product.

Timed Calibration

1. From the CALIBRATE PUMPS menu, select CALIBRATE [TIME] and press **ENTER**. The CALIBRATE [TIME] menu displays a list of pumps.
2. Move selection box to a pump and press **ENTER**. The CALIB [TIME] input screen displays the pump and any previous calibration. Place a collection container at the pump output.
3. Press **ENTER** to start timed calibration (if flush enabled, there is a two second delay for pre-flush). Pump must run the <u>entire 20 seconds</u> (timed countdown displays). Pump automatically stops when counter reaches zero and screen changes to DISPENSED VOLUME.
4. At DISPENSED VOLUME input screen, enter the amount collected in the container during the 20 second calibration and press **OK (ENTER)**.
5. Select another pump to calibrate, or press **EXIT** to return to the previous menu. To confirm calibration amounts, go to the VIEW CALIBRATION screen for all pumps.

Calibrate by Time

```
CALIBRATE (TIME)
P1 PRE-WASH
P2 DETERGENT
P3 LIQUID BLEACH
P4 BLEACH ALTERNATIVE
P5 SOUR/CONDITIONER
P6 ENZYME LIFT
```

```
CALIBRATE (TIME)
P1 PRE-WASH          02.1
         20.0
WARNING!  PLACE
CONTAINER AT OUTPUT!
  START/STOP        EXIT
```

```
DISPENSED VOLUME
ENTER AMOUNT PUMPED
    ▲
   00.0 OZ
    ▼
   OK            EXIT
```

Volume Calibration

1. Select CALIBRATE [VOLUME] from the CALIBRATE PUMPS menu and press **ENTER**. The CALIBRATE [VOL] menu displays a list of possible pumps.
2. Move selection box to pump choice and press **ENTER**. The CALIBRATE [VOL] input screen appears. Place a collection container at the pump output.
3. Press the **ENTER** key to start calibration. (if flush enabled, there is a two second delay for pre-flush)
4. Press the **ENTER/STOP** key when 8 oz. / 250 ml. of product has been collected in the container. The TOTAL ECLIPSE controller then calculates the time that was required to dispense that volume and automatically calibrates that pump. No data input is needed.
   To confirm the calibration amount, go to the VIEW CALIBRATION screen for all pumps.
5. Select another pump to calibrate, or press **EXIT** to return to the previous menu.

Calibrate by Volume

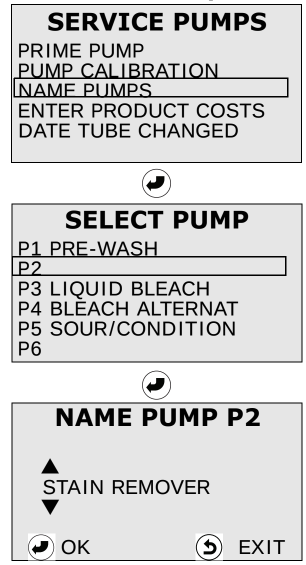
```
CALIBRATE (VOL.)
P1 PRE-WASH
P2 DETERGENT
P3 LIQUID BLEACH
P4 BLEACH ALTERNATIVE
P5 SOUR/CONDITIONER
P6 ENZYME LIFT
```

```
CALIBRATE (VOL)
P2 DETERGENT
STOP PUMP AT 8 OZ
WARNING! PLACE
CONTAINER AT OUTPUT
 START/STOP   EXIT
```

1. 1. 3. Name Pumps (Optional)

Add a name to the pump number (i.e. P1 PRE-WASH). Installer-created names are not translated if the controller language is changed.

Name Pumps

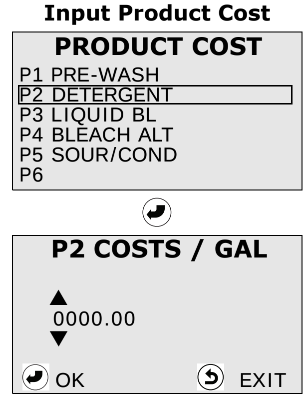


1. From the SERVICE PUMPS menu, move selection box to NAME PUMPS and press **ENTER**. The SELECT PUMP menu displays.
2. Press **UP** / **DOWN ARROWS** to select the pump to name (or rename).
3. Press **ENTER**. The NAME PUMP [P#] input screen displays the pump number (and any previously input name), with the first letter of the name selected for entry.
4. Press the **UP** / **DOWN ARROWS** to move through letters, numbers, hyphen, underscore and space (maximum is 15 characters).
5. To move to the next digit, press the **RIGHT ARROW**. To backspace, press the **LEFT ARROW**.
6. Press **ENTER** to save the pump name and return to the SELECT PUMP menu. Select another pump to name, or press **EXIT** to return to the previous menu.

1. 1. 4. Enter Product Costs (Optional)

Enter the cost (per gallon or liter) for the chemical dispensed by that pump to calculate costs on reports. Any currency may be used; the currency type is not input into the controller. The available characters are **0000.00**.

Input Product Cost

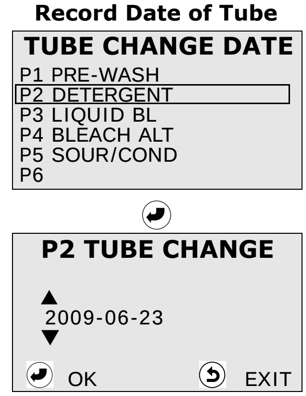


1. From the SERVICE PUMPS menu, move selection box to ENTER PRODUCT COSTS and press **ENTER**. The PRODUCT COST menu displays.
2. Select a chemical pump and press **ENTER**. The P# COST/GAL [L] input screen displays. Input the product cost for chemical dispensed.
3. Press the **UP** or **DOWN ARROW** to edit the first digit. Press the **RIGHT ARROW** to move to the next digit. Continue editing each digit until the correct cost displays.
4. Press **ENTER** to save the cost and return to the PRODUCT COST menu to select another pump, or press **EXIT** to discard changes.

1. 1. 5. Date Tube Changed (Optional)

Enter the date pump tubing is changed (for reports and maintenance).

Record Date of Tube



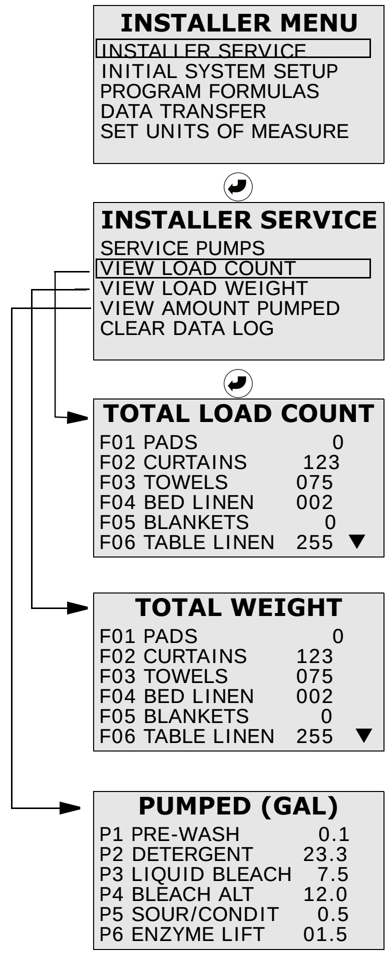
1. From the SERVICE PUMPS menu, move selection box to DATE TUBE CHANGED and press **ENTER**. The TUBE CHANGE DATE menu displays.
2. Press the **UP** or **DOWN ARROW** to select the pump.
3. Press **ENTER**. The P#TUBE CHANGE input screen displays today's date, with the first number selected.
4. Press **ENTER** to save the current date and return to the TUBE CHANGE DATE menu to select another pump **OR GO TO STEP 5** to change the date. Press **EXIT** to discard changes and return to the previous menu.
5. To enter a date other than today's date, press the **UP** or **DOWN ARROW** to edit the first digit. Press the **RIGHT or LEFT ARROW** to move the cursor. Continue until the correct date displays.

1. 2. View Load Count

View the number of loads run, for each wash formula, since the last clear of the data log (see *1. 5. "Clear Data Log"* below).

1. From the INSTALLER MENU menu, select INSTALLER SERVICE and press **ENTER**.
2. Move the selection box to VIEW LOAD COUNT and press **ENTER**. The TOTAL LOAD COUNT menu displays loads run by formula.
3. Press the **UP** or **DOWN ARROW** to view all formulas.
4. Press **EXIT** to return to the INSTALLER SERVICE menu.

View Load Weight:
View Amount Pumped:



1. 3. View Total Weight

View the total weight washed, by formula, since the last clear of the data log (see *1. 5. "Clear Data Log"* below).

1. From the INSTALLER MENU menu, select INSTALLER SERVICE and press **ENTER**.
2. Move the selection box to VIEW LOAD WEIGHT and press **ENTER**. The TOTAL WEIGHT menu displays total weight washed by formula.
3. Press the **UP** or **DOWN ARROW** to view all formulas.
4. Press **EXIT** to return to the INSTALLER SERVICE menu.

1. 4. View Amount Pumped (in gallons or litres)

View amount of product dispensed for all pumps since the last clear of the data log (see *1. 5. "Clear Data Log"* below).

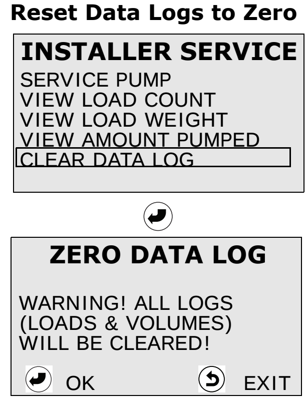
1. From the INSTALLER MENU menu, select INSTALLER SERVICE and press **ENTER**.
2. Move selection box to VIEW AMOUNT PUMPED and press **ENTER**. The PUMPED GAL [L] menu displays the amount of product dispensed by each pump.
3. Press the **UP** or **DOWN ARROW** to view all pumps. Press **EXIT** to return to the INSTALLER SERVICE menu.

1. 5. Clear Data Log

The ZERO DATA LOG re-sets all counters, including the LOAD COUNT, LOAD WEIGHT, and AMOUNT PUMPED counters to zero (0). Settings & formulas are not affected by this function.

1. From the INSTALLER MENU menu, select INSTALLER SERVICE and press **ENTER**.
2. Move selection box to CLEAR DATA LOG and press **ENTER**. The ZERO DATA LOG screen appears. **CAUTION**: All logged data for load weight, total loads run and pump amounts will be reset to zero.
3. Press **OK** to clear all data logged and reset counters to zero.

Reset Data Logs to Zero



Note	Past information for Manager Reports, Summary Reports and the Activity Log is no longer available when the Data Log is cleared. If the Data Log is not cleared, older data is overwritten by more recent data in the buffer memory. **It is recommended that required reports are run at least every 30-60 days to avoid loss of information.**

2. Initial System Setup

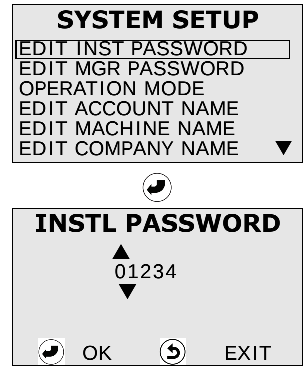
2. 1. Edit Installer Password

The Installer Password may be changed from the factory default (**01234**) to any five-number password.

IMPORTANT!	Be sure to note your new Installer Password. If the password is lost, you will not be able to access Installer Menus and the controller must be returned to Nova Controls to reset password.

Initial System Setup

Change Installer Password

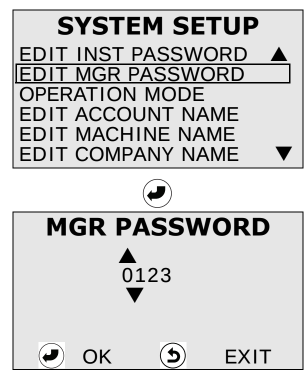


1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays, with EDIT INST PASSWORD selected.
2. Press **ENTER** to select EDIT INST PASSWORD. The INSTL PASSWORD input screen appears.
3. Input a new password in the same manner as in *"Password Access to Installer Menus" on page 21.*
4. Press the **ENTER** key to save the new Installer Password and return to the SYSTEM SETUP menu.

2. 2. Edit Manager Password

The Manager Password allows a Productivity Report to be printed from the Operator Menu, while adding the security of password input. The Manager Password may be changed from the factory default (**0123**) to any four numbers.

Change Manager Password



1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move the selection box to EDIT MGR PASSWORD and press **ENTER**. The MGR PASSWORD input screen appears.
3. Input a new password in the same manner as in *"Password Access to Installer Menus" on page 21.*
4. Press **ENTER** to save the new Manager Password and return to the SYSTEM SETUP menu.

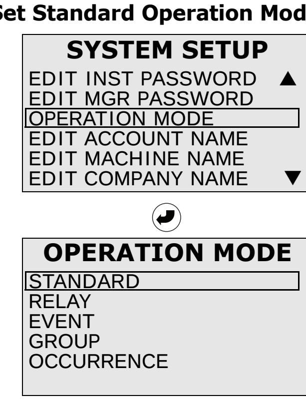
2. 3. Set Operation Mode

Each Operation Mode has a different combination of rules that govern the dispensing sequence. It is important to understand these rules. See *"Modes of Operation" on page 3* and also *"Features and Options" on page 5.*

2. 3. 1. Set Standard Operation Mode

Standard Mode is the default mode (and the preferred mode for most North American installations) in which each washer trigger signal notifies the corresponding pump to dispense the set amount(s) of product for that pump, based on the selected formula. Standard Mode is the only mode that features AFS, explained in *"Auto Formula Select (AFS)" on page 6.*

Set Standard Operation Mode



1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move selection box to OPERATION MODE and press **ENTER**. All Operation Modes display.
3. Select STANDARD. Press **ENTER** to return to the SYSTEM SETUP menu.

2. 3. 2. Set Relay Operation Mode

Relay Mode dedicates control of pumps to the washer supply signals. Pumps run for the duration of supply signal time, after being qualified by the signal filter time. To select Relay Mode, follow the steps in *Set Standard Operation Mode on page 27*, except select RELAY in Step 2.

Set Relay Operation Mode

OPERATION MODE
STANDARD
RELAY
EVENT
GROUP
OCCURRENCE

2. 3. 3. Set Event Operation Mode

Event Mode uses programmed formulas for automatic operation with washers that offer no supply trigger connections (fixed cycle washers). Product dispensing is paced by machine events, rather than fixed-time as in Standard Mode. Event mode requires four signal connections to the MI (see *A.“Supply Trigger Wiring” on page 10)*. An Event occurs when a trigger signal is detected on Triggers 2 or 3 (the hot and cold fill valves).

Up to 16 Events can be programmed (most washers have 5), and up to 3 pumps (with **A**, **B** and/or **C** amounts) may be added to an Event. When deciding which pumps to include in an event, it is important to read and understand the *“Event Mode Rules” on page 4* and the *“Formula Rules” on page 7*. .

Note	Pumps can be included in multiple events, however, if a pump is included in an event, but is not in the currently selected formula, the pump will not run. If a trigger for a pump to run occurs and the pump is already running, the trigger is ignored. This could result in not running some or all of the pumps called for by a trigger signal. It is imperative that the installer allow plenty of time between triggers to insure that a pump (or group of pumps) will run for each of its triggers.

1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move selection box to OPERATION MODE and press **ENTER**. All Operation Modes display.
3. Select EVENT and press **ENTER**. The EVENT MODE menu displays Event 01-16.
4. Select an Event from the EVENT MODE menu. The E[#] PUMP SELECT screen appears (previously included pumps display a check mark).
5. Select a pump to include in this event and press **ENTER**. A check mark (✔) appears to the right of each included pump. (To remove a pump from an event, select the pump and press **ENTER** again.)
6. Select up to 2 additional pumps for this event, as in step 3. If you select more than three pumps per event, an ERROR screen displays.
7. When all needed pumps are included, press **EXIT** to return to the EVENT MODE menu and set another event.
8. When all needed events are set, press **EXIT** three times to return to the SYSTEM SETUP menu.

Set Event Operation Mode

EVENT MODE
EVENT 01
EVENT 02
EVENT 03
EVENT 04
EVENT 05
EVENT 06 ▼

E1 PUMP SELECT
P1 PRE-WASH ✔ ▲
P2 DETERGENT ✔
P3 LIQUID BLEACH
P4 BLEACH ALTERNAT ✔
P5 SOUR/CONDIT
P6 ENZYME LIFT ▼

If an attempt is made to select more than 3 pumps, this ERROR message appears.

ERROR
3 PUMPS MAXIMUM
OK EXIT

2. 3. 4. Set Group Operation Mode

Group Mode places the six trigger signals into four, pre-defined groups (see table). Between 0-3 pumps may be assigned to each group. A pump may be used in more than one group. The trigger signals determine which group of pumps dispense their programmed formula amounts, and in which order.

Group	Trigger Signal Inputs
Group 1	1 and/or 2
Group 2	3 and/or 4
Group 3	5
Group 4	6

All pumped amounts and delays are based upon the currently selected formula. If a trigger for a pump to run occurs and the pump is already running, the trigger is ignored. If a pump is included in a group, but is not in the currently selected formula, the pump will not run when triggered. This could result in not running some or all of the pumps called for by a trigger signal.

Note	It is imperative that the installer allow plenty of time between triggers to insure that a pump (or group of pumps) will run for each of its triggers.

Set Group Operation Mode

1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP and press **ENTER**.
2. Select OPERATION MODE, and press **ENTER**. The OPERATION MODE menu displays.
3. Select GROUP and press **ENTER**. The GROUP MODE menu displays.

OPERATION MODE
STANDARD
RELAY
EVENT
GROUP
OCCURRENCE

GROUP MODE
SET GROUP INTERLOCK
SET GROUPS

Group Interlock

If **Group Interlock** is set to **ON**, (1) each pump group runs only once per washer load (regardless of how many times the washer turns on supply signals), and (2) the wash cycle ends either five minutes after the count pump has run or when the programmed Cycle Time is reached, whichever occurs first. Set Cycle Time (*2. 8.“Set Cycle Time” on page 32*) to the desired Group Interlock Time.

See *“Group Interlock” on page 5* for more information.

Set Group Interlock On/Off

1. Select SET GROUP INTERLOCK and press **ENTER**. The GROUP INTERLOCK menu appears.
2. Select ON (to enable) or OFF (to disable) GROUP INTERLOCK and press **ENTER**. Set the Cycle Time to the desired Group Interlock Time.
3. Press **EXIT** to return to the GROUP MODE menu.

GROUP INTERLOCK
OFF
ON
OK EXIT

Set Groups (Add Pumps to a Group)

Add Pumps to a Group

1. From the GROUP MODE menu, select SET GROUPS and press **ENTER**. The GROUPS menu appears.
2. Select a Group to program and press **ENTER**. The G# PUMP SELECT screen appears (previously included pumps display a check mark).
3. Select a pump to include in this group and press **ENTER**. A check mark (✔) appears to the right of each included pump. (To remove a pump from an event, select the pump and press **ENTER** again. The check mark is removed.)
4. Select up to 2 more pumps to include in this group (in the same manner as in step 3.) If you attempt to select more than three pumps per event, an ERROR screen displays.
5. When all needed pumps display a check mark, press **EXIT** to return to the SET GROUPS menu to program another group.
6. When groups are programmed, press **EXIT** four times to return to the SYSTEM SETUP menu.

GROUPS
GROUP 1 (TRIG 1 / 2)
GROUP 2 (TRIG 3 / 4)
GROUP 3 (TRIG 5)
GROUP 4 (TRIG 6)

G1 PUMP SELECT
P1 PRE-WASH ✔ ▲
P2 DETERGENT ✔
P3 LIQUID BLEACH ✔
P4 BLEACH ALT
P5 SOUR/CONDIT
P6 ENZYME LIFT ▼

ERROR
3 PUMPS MAXIMUM
OK EXIT

2. 3. 5. Set Occurrence Operation Mode

The Occurrence Mode option is best suited for washers in which trigger signals do not have a specific function. An Occurrence is a qualified signal received on any of the designated inputs. Each new qualified signal signifies a new Occurrence within the current wash cycle; simultaneous triggers (triggers that occur within 2 seconds of each other) are considered one (1) Occurrence.

Up to 16 Occurrences can be programmed, with up to 3 pumps (each with up to 3 amounts) dispensing per Occurrence. Each pump can only be used once per Occurrence, but the same pump can be used in multiple Occurrences. All pumped amounts and delays are based upon the currently selected formula. If there is no pump assigned to an Occurrence, nothing is pumped and the Occurrence acts as a "space holder."

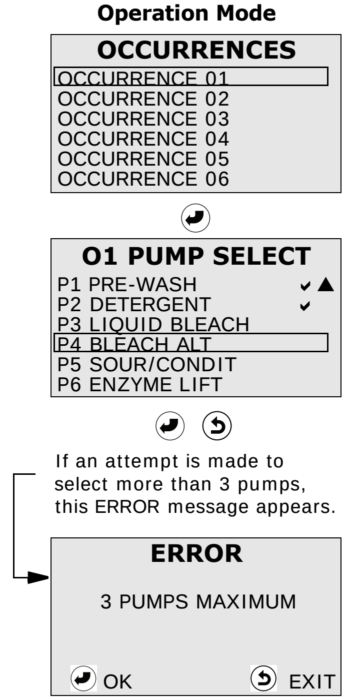
Each time a particular pump is run within the formula and Occurrences, it will sequentially step through programmed **A**, **B**, and/or **C** amounts until it reaches the highest level. If the pump is to run in two Occurrences, the **B** amount must be set and will run in the second Occurrence. If the pump is to run in three or more Occurrences, the **C** amount must be set and will run in the third Occurrence and all subsequent Occurrences within that wash cycle.

If a trigger for a pump to run occurs and the pump is already running, the trigger is ignored. This could result in not running some or all of the pumps called for by a trigger signal. If a pump is included in an Occurrence, but is <u>not</u> in the currently selected formula, the pump will not run when triggered. See also *"Occurrence Mode of Operation" on page 5* for additional rules about this mode.

Note	
	It is imperative that the installer allow plenty of time between triggers to insure that a pump (or group of pumps) will run for each of its triggers.

1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move selection box to OPERATION MODE and press **ENTER**. All Operation Modes display.
3. Select OCCURRENCE and press **ENTER**. The OCCURRENCES menu displays Occurrence 01-16.
4. Select one Occurrence. The O# PUMP SELECT menu appears (previously included pumps display a check mark).
5. Select a pump to include in this Occurrence and press **ENTER**. A check mark (✔) appears to the right of each included pump. (To remove a pump from an occurrence, select the pump and press **ENTER** again. The check mark is removed.)
6. Select up to 2 more pumps to include in this Occurrence (in the same manner as in step 3). If you attempt to select more than three pumps per Occurrence, an ERROR screen displays.
7. When all needed pumps are included, press **EXIT** to return to the OCCURRENCES menu and program another Occurrence.
8. When all needed occurrences are programmed, press **EXIT** three times to return to the SYSTEM SETUP menu.

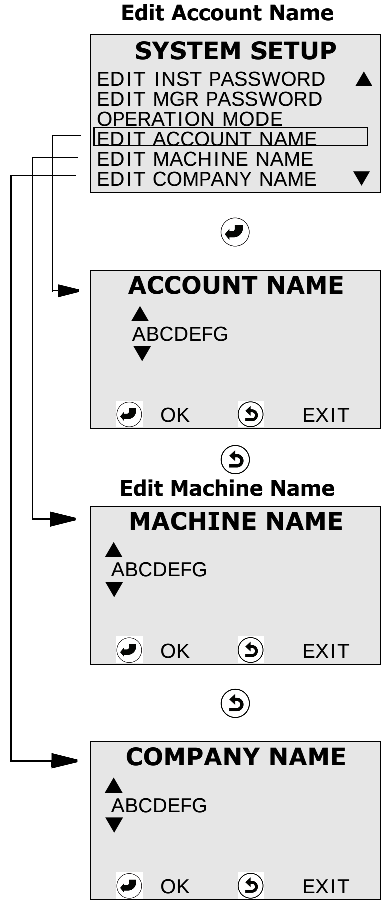
Set Occurrence Operation Mode



2. 4. Edit Account Name (Optional)

Input the client or account name that will appear on Summary Reports. The following characters are available: underscore, space, hyphen, letters A - Z, and numbers 0 - 9.

1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move the selection box to EDIT ACCOUNT NAME and press **ENTER**. The ACCOUNT NAME input screen appears.
3. Change the active digit, indicated by the double-arrow cursor ▲▼, by pressing the **UP** or **DOWN ARROW**.
4. To move to the next digit, press the **RIGHT ARROW**. To backspace, press the **LEFT ARROW**.
5. When the full name appears (maximum 15 characters), press **ENTER** to save the name and return to the SYSTEM SETUP menu.



2. 5. Edit Machine Name (Optional)

Input a unique name or number for each wash machine. The machine name will appear on Summary Reports.

Input the machine name in the same manner as *2. 4. "Edit Account Name (Optional)", above,* except select EDIT MACHINE NAME in Step 2.

2. 6. Edit Company Name (Optional)

Input the chemical company's name to replace NOVA CONTROLS in the Home Screen.

Input the Company Name in the same manner as *2. 4. "Edit Account Name (Optional)", above,* except select EDIT COMPANY NAME in Step 2.

About Setting the Pump Interface

Note	The TOTAL ECLIPSE controller only controls flush with dedicated flush-compatible Nova Controls pump interface (P.I.) hardware. In flush mode, only one pump may run at a time. When multiple pumps are triggered, they are placed in a queue to run sequentially.

The following illustration can assist in identification of pumpstand P.I. Boards, any of which can be used with or without flush.

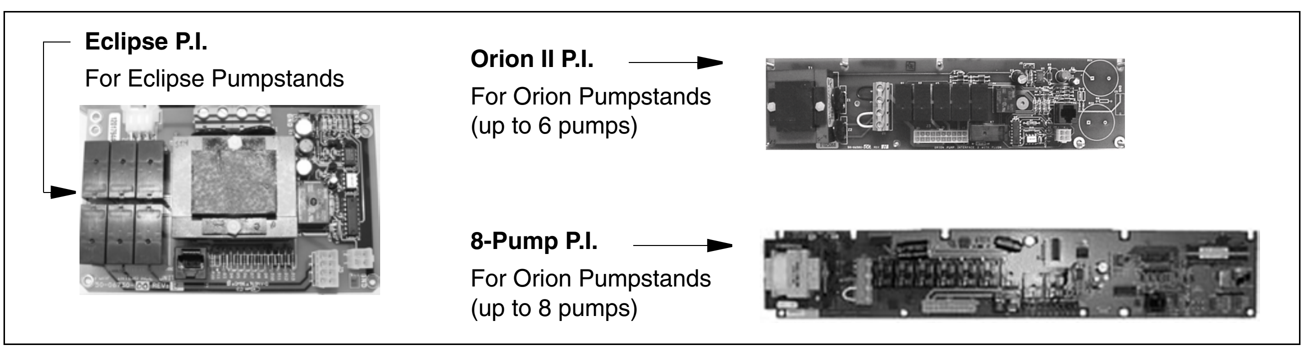
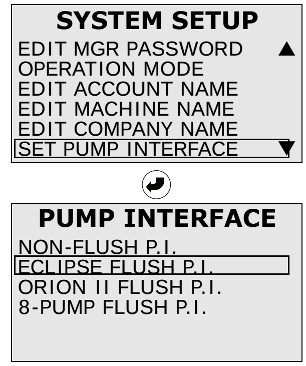


Figure 11 Pumpstand Pump Interface (P.I.) Board Examples

2. 7. Set Pump Interface

Set Pump Interface



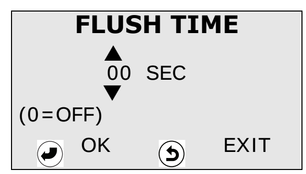
1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move selection box down (past menus showing) to SET PUMP INTERFACE.
3. Press **ENTER**. The PUMP INTERFACE menu displays.
4. Select the P.I. and press **ENTER**. If you have selected a flush P.I., the FLUSH TIME input screen appears. If you will be using a flush manifold, you must set a Flush Time to enable flush operation.

2. 7. 1. Set Flush Time (Enable Flush Operation)

If you are using a flush manifold, enable flush operating by setting the Flush Time to 1 - 99 seconds. At the factory default setting of zero (00), flush is disabled, even when using a flush-compatible P.I. A flush enabled system has a fixed, two second pre-flush and a programmable post-flush time. See also "Flush Operation (for a Flush-compatible P.I. ONLY)" on page 6 for more information.

Note	To enable flush operation on an 8-Pump P.I., you must remove the jumper. See the manual for your 8-Pump dispenser for a complete explanation of jumper removal.

Flush Time (Enable Flush)



1. Change the active digit, indicated by the double-arrow cursor, by pressing the **UP** or **DOWN ARROW**.
2. To move to the next digit, press the **RIGHT ARROW**. To backspace, press the **LEFT ARROW**.
3. When the correct flush time appears, press the **ENTER** key to save the setting and return to the SYSTEM SETUP menu.

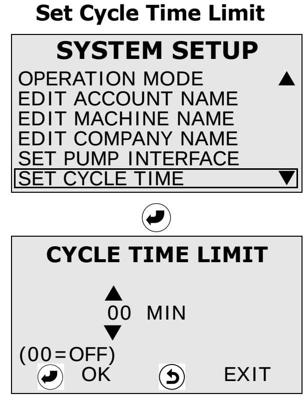
2. 8. Set Cycle Time

Note	Set Cycle Time for Standard, Group or Occurrence Operation Mode unless the installation has loads that last longer than 99 minutes. For these extra-long loads, Cycle Time can be set to zero (OFF) and will no longer end a wash cycle, causing complete reliance on the Count Pump to end the wash cycle.

Cycle Time should be set to five minutes longer than the longest wash cycle. The range is 00, 30 - 99 minutes. The factory default is 00 (OFF). If Group Mode is selected, the Cycle Time is used as the Group Interlock time.

For more information about Cycle Time, see *"Cycle Time (Standard, Group or Occurrence Modes ONLY)" on page 6.*

Set Cycle Time Limit



1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move the selection box to SET CYCLE TIME and press **ENTER**. The CYCLE TIME LIMIT input screen appears.
3. Change the active digit by pressing the **UP** or **DOWN ARROW**.
4. Move to the next digit by pressing the **RIGHT ARROW**.
5. When the desired time appears, press **ENTER** to save and return to the SYSTEM SETUP menu.

2. 9. Signal Filter Time

The Signal Filter Time is the amount of time a trigger signal needs to be **ON** continuously before the controller will accept the signal as valid. When the Filter Time setting is reached, the signal is considered qualified (a true signal). The default Filter Time is two seconds. Use a higher time setting if washers present problems (i.e. unreliable signals falsely triggering pumps). Only one Filter Time can be selected and the selected time is used for all trigger signals, except the AFS trigger.

Set Signal Filter Time

SYSTEM SETUP
EDIT ACCOUNT NAME ▲
EDIT MACHINE NAME
EDIT COMPANY NAME
SET PUMP INTERFACE
SET CYCLE TIME
SIGNAL FILTER TIME ▼

TRIGGER FILTER
2 SECONDS
10 SECONDS
20 SECONDS
30 SECONDS
60 SECONDS
90 SECONDS

1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move the selection box to SIGNAL FILTER TIME and press **ENTER**. The TRIGGER FILTER screen appears.
3. Select the filter time and press **ENTER** to save and return to the SYSTEM SETUP menu.

2. 10. Set Auto-Formula Select [AFS] Trigger (Standard Mode ONLY)

AFS allows a trigger signal from the washer to automatically select and run a programmed formula with a timed signal (Filter Time is not used). The AFS default setting is 0 (Off).

AFS <u>cannot</u> utilize a trigger signal that starts or ends a formula cycle (first pump triggered starts the formula cycle and the count pump ends the formula cycle). A more detailed explanation of AFS can be found in *"Auto Formula Select (AFS)" on page 6*.

To set an AFS trigger (enable Auto-Formula Select), the installer must program the washer supply signal for a total of 2 seconds multiplied by the desired formula number. For example:

Formula 1 = 2 second signal (1 x 2 seconds = 2)
Formula 2 = 4 second signal (2 x 2 seconds = 4)
Formula 3 = 6 second signal (3 x 2 seconds = 6), etc.

To select a trigger number to use as the AFS trigger:

Set Signal as AFS Trigger

SYSTEM SETUP
EDIT MACHINE NAME ▲
EDIT COMPANY NAME
SET PUMP INTERFACE
SET CYCLE TIME
SIGNAL FILTER TIME
SET AFS TRIGGER ▼

AFS TRIGGER
▲
0
▼
(0 = OFF)
OK EXIT

1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move the selection box to SET AFS TRIGGER and press **ENTER**. The AFS TRIGGER input screen appears.
3. Set the AFS Trigger number and press **ENTER** to save and return to the SYSTEM SETUP menu.

2. 11. Set User Prime

User Prime allows the machine operator to prime pumps without needing a password. The default setting is DISABLE. Select ENABLE to allow the operator to determine the length of time prime will run (an automatic shut off occurs after 10 minutes of keyboard inactivity). Select LIMITED to allow only 30 seconds of total prime per pump, per wash cycle.

Set User Prime

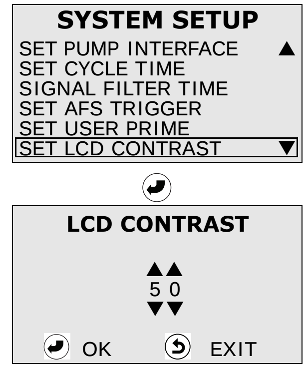
SYSTEM SETUP
EDIT COMPANY NAME ▲
SET PUMP INTERFACE
SET CYCLE TIME
SIGNAL FILTER TIME
SET AFS TRIGGER
SET USER PRIME ▼

USER PRIME
DISABLE
ENABLE
LIMITED 30 SEC

1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move the selection box to USER PRIME ENABLE and press **ENTER**. The USER PRIME screen appears.
3. Select a a setting. Press **ENTER** to save and return to SYSTEM SETUP.

2. 12. Set LCD Contrast

Adjust Display Contrast



The contrast on the controller's display screen can be adjusted to adapt to the location and the viewing needs of the user. The default setting is 50; the range is 30 - 99. The two, double-arrow cursors ▲▲▼▼ indicate that both digits increase or decrease at the same time.

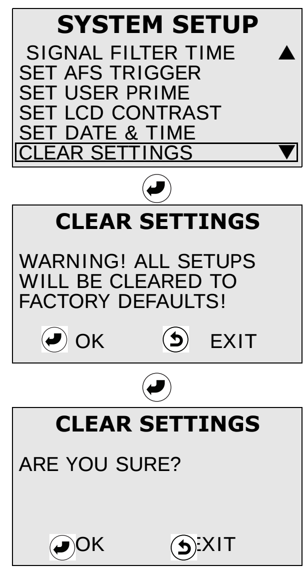
1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER.** The SYSTEM SETUP menu displays.
2. Move the selection box to SET LCD CONTRAST and press **ENTER**. The LCD CONTRAST screen appears, set to 50 (mid-range).
3. Press and hold the **UP ARROW** to increase contrast (darken text). Press and hold the **DOWN ARROW** to decrease contrast (lighten text).
4. When you are satisfied with the display setting, press **ENTER** to save and return to SYSTEM SETUP.

2. 13. Set Date & Time

Change the date and time to be current for the installation, i.e. to set to Daylight Savings Time. For instructions on changing the date or time, see *"Set Date and Time" on page 12.* This setting is retained if the power cycles off.

2. 14. Clear Settings to Factory Defaults

Reset to Factory Defaults



Clear all controller settings (passwords, mode of operation, formulas, trigger assignments, flush, etc.) and restore the controller to the factory default settings. Date and Time settings are not affected by this function.

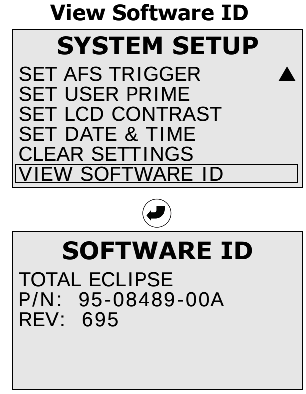
- After CLEAR SETTINGS has been performed, it cannot be undone.

1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move the selection box to CLEAR SETTINGS and press **ENTER**. The CLEAR SETTINGS screen appears with a **WARNING**!
3. To clear all settings and formulas, press **ENTER** at this first warning screen. You will have one, last chance to be certain that you *really* want to clear settings, when the screen displays, "ARE YOU SURE?".
4. Press **ENTER** at this screen to delete all previously saved settings, restore factory defaults and returns to SYSTEM SETUP or press **EXIT** to return to the previous menu.

2. 15. View Software ID

For diagnostic or troubleshooting purposes, Nova Controls personnel may ask for the software ID information .

View Software ID



1. From the INSTALLER MENU, select INITIAL SYSTEM SETUP, and press **ENTER**. The SYSTEM SETUP menu displays.
2. Move the selection box to VIEW SOFTWARE ID and press **ENTER**. The SOFTWARE ID information screen appears.
3. Press any key to return to the SYSTEM SETUP menu.

About Programming Formulas

Program Formulas contains menus to create or edit formulas for Standard, Group, Event and Occurrence Modes. (See *2. 3."Set Operation Mode" on page 27* for an explanation of each mode of operation.)

Important Note About Relay Mode	If using Relay Mode of operation, the installer should set a default weight for Formula 1 to enable accurate reports. No other formula parameters need to be set. The operator can override the default load weight with the actual weight of a load.

The TOTAL ECLIPSE controller allows up to 20 formulas to be created, using up to 8 pumps. Each formula is given a unique number (F01, F02, etc., etc.) as a default. For ease of formula selection, a name can be added to the formula number, as described in *3. 4."Edit Name (Optional)" on page 38*. Formula names do not appear unless they are input by the installer or uploaded from a setup file on a USB flash drive. Formula names appear in the language in which they were created. Each formula can include up to eight pumps; each pump may be programmed for up to three product amounts (**A**, **B** and **C**) within a formula. A pump can be included in more than one formula. A delay time may be programmed for any pump.

Each pump is also given a unique number (P1, P2, etc.) as a default. For ease of programming, a chemical name may be added to the pump number, as described in *1. 1. 3."Name Pumps (Optional)" on page 25*. Pump names do not appear unless they are input by the installer or uploaded from a setup file on a USB flash drive. Pump names appear in the language in which they were created.

Each pump within a formula must be calibrated before running the formula (see *1. 1. 2."Calibrate Pumps" on page 23*).

A load is counted each time the load count pump runs (except in Event Mode, as described in *"Event Mode of Operation" on page 4*). The highest numbered pump with an amount programmed is automatically designated as the load count pump for each programmed formula unless it is overridden by the installer and a different load count pump is selected.

Formula Rules

- In Modes of Operations that use formulas (**Standard, Event, Group and Occurrence**), a pump may be set to dispense multiple times, with up to three different amounts (identified as Amounts **A**, **B** and **C**). A pump will not dispense unless at least one amount (not zero) is set for that pump in the formula.
- If only the **A** amount is programmed for a pump in a formula, the first request results in Amount **A** dispensing. Additional requests within the same wash cycle are ignored.
- If only **A** and **B** amounts are programmed for a pump in a formula, the first request results in the dispensing of Amount **A**. The second request results in the dispensing of Amount **B**. Additional requests (after the second request) are ignored.
- If all three amounts (**A**, **B**, and **C**) are programmed for a pump in a formula, the first request results in the dispensing of Amount **A**. The second request results in the dispensing of Amount **B** and the third request results in the dispensing of Amount **C**. Each additional request (after the third request) results in the dispensing of Amount **C** again. The dispensing sequence is reset when the wash cycle ends (either because the count pump's highest amount has run or the Cycle Time has been reached, whichever is first).

Note	It is imperative that the installer allow plenty of time between triggers to insure that a pump (or group of pumps) will run for each of its triggers.

Programming Notes

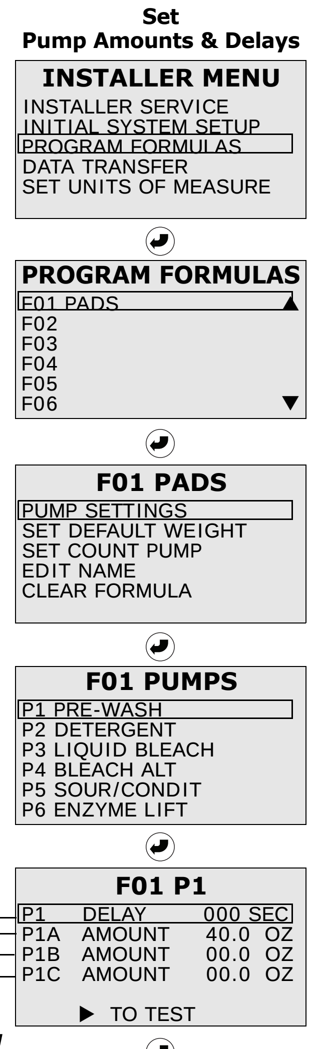
- Only program the pump amounts that will actually be triggered by the washer supply signals.
- Program **A**, **B** and **C** amounts for different product amounts within a wash formula–or use as a pump lockout, by not programming any **B** or **C** amounts.
- On 8-Pump P.I.s, pumps 7 and 8 run as alternates to pumps 3 and 5 and share the same trigger signals (3 and 5). See *"8-Pump Interface" on page 8* for additional operating information.
- **When using flush**, all pumps queue up to run one-at-a-time automatically.

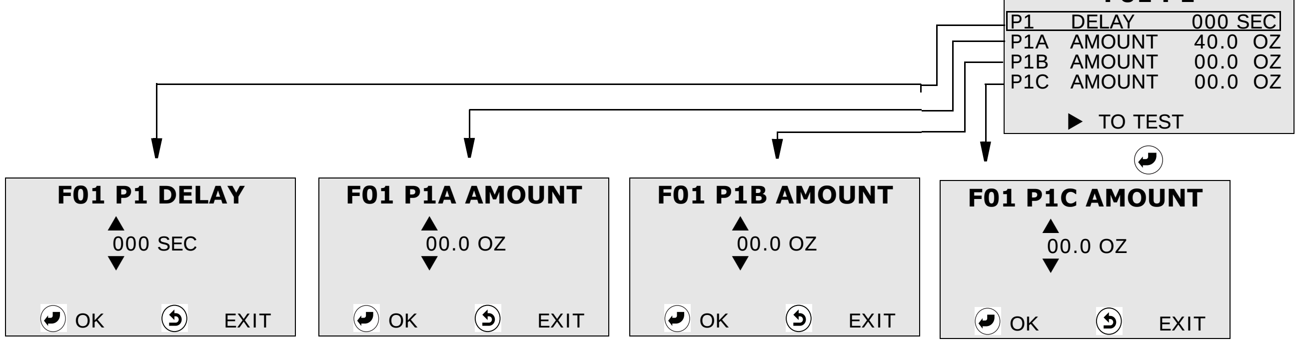
3. Program Formulas

1. From the INSTALLER MENU, select PROGRAM FORMULAS, and press **ENTER**. The PROGRAM FORMULAS menu displays a list of formulas by number (with formula name, if previously input or file-transferred).
2. Select a formula and press **ENTER**. The F0# [NAME] programming menu displays (with the first 12 letters of the pump name, if any displayed).

3. 1. Pump Settings

1. Select PUMP SETTINGS and press **ENTER**. The F0# PUMPS menu displays.
2. Select a pump and press **ENTER**. The F0# P# menu displays (only the formula number and pump number display; no names appear on this menu). F0 = Formula. P = Pump.
3. Select any of the following: DELAY (in seconds); P1A (Pump 1, **A** amount); P1B (Pump 1, **B** amount); or P1C AMOUNT (Pump 1, **C** amount) and press **ENTER**. An input screen displays for that setting.
4. Set the value with the **UP** or **DOWN ARROW**.
5. Press **ENTER** to save each setting and return to the F0# P# (Formula / Pump) menu to input another amount or delay for that pump.
6. When all needed values are displayed on the F0# P# menu, press **EXIT** to return to the previous menu and select another pump to program.
7. When all needed pumps are programmed, press **EXIT** to return to the F0# [NAME] menu to set the default weight, change the count pump or edit the formula name.



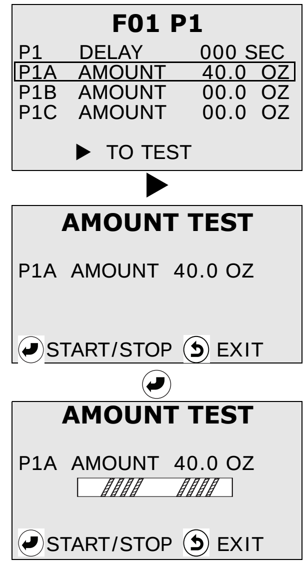


3. 1. 1. Test the Pump Amount

For each programmed Pump Amount, the installer can verify that the correct amount is pumped.

1. Select the Amount to test using the **UP** or **DOWN ARROW**.
2. Press the **RIGHT ARROW** to view the AMOUNT TEST screen.
3. Press **ENTER** to begin the test. Moving bars indicate that the pump is running. The pump shuts off automatically when the programmed amount has been pumped.
   - (a). **To pause the test** before the programmed amount dispenses: Press **ENTER** again (the AMOUNT TEST screen continues to display).
   - (b). **To abort the test** before the programmed amount dispenses: Press **Exit** (the test stops and display returns to PUMP SETTINGS).
4. If the test is allowed to run to completion, the display automatically returns to the PUMP SETTINGS screen when the programmed amount is pumped.

Test Pump Amounts



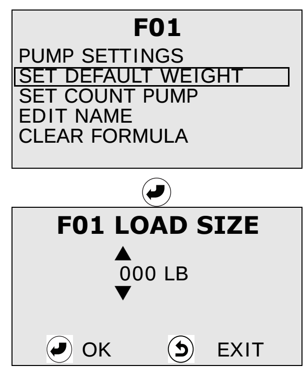
Note	
	If the pump is not calibrated, or an Amount of 0.00 is specified, no product will dispense during the test. If Flush Mode is active, Flush will occur during the test, as it does during priming. Test Amounts do not appear on reports, except pump activity is logged on the Activity Log.

3. 2. Set Default Weight

Set the default load weight for this formula. When a load runs, either the default load weight or the operator-entered actual load weight for a specific load is recorded in the data log (for Reports).

1. Select SET DEFAULT LOAD WEIGHT and press **ENTER**. The F0# LOAD SIZE input screen displays.
2. Change the active digit by pressing the **UP** or **DOWN ARROW**. Move to the next digit by pressing the **RIGHT ARROW**.
3. When the desired load size appears, press **ENTER** to save and return to F0#.

SET DEFAULT LOAD WEIGHT



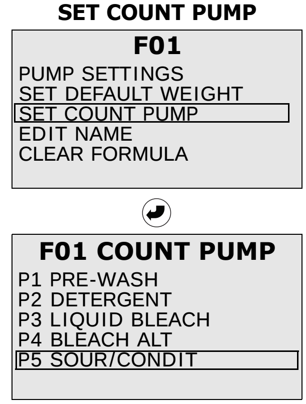
3. 3. Set Count Pump (Optional – Standard, Group and Occurrence Modes Only)

The count pump records one complete wash cycle. It is used to count a load and reset the formula. The factory set default count pump is the formula's last (highest) pump number's last (closest to **C**) programmed amount. Use this setting to override the default count pump in a formula or to change the count pump if the default was previously overridden.

The Installer must insure that at least one amount is programmed for the count pump AND that **the last pump to run is the count pump**. All programmed count pump amounts must be requested to run or the cycle will be recorded as an "incomplete load." If two or three amounts have been assigned to the count pump, it must be requested to run at least two or three times, respectively.

1. Select SET COUNT PUMP and press **ENTER**. The F0# COUNT PUMP selection screen displays all pumps with at least one amount set.
2. Move the selection box to select the count pump number and amount and press **ENTER** to save and return to the EDIT NAME screen.

SET COUNT PUMP

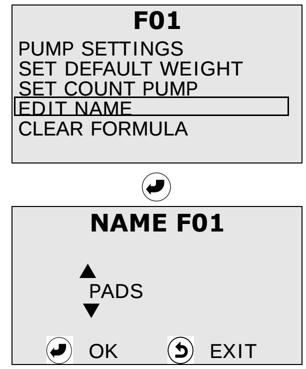


3. 4. Edit Name (Optional)

Add a name to the formula number. The name is limited to 15 characters.

1. Select EDIT NAME and press **ENTER**. The NAME F01 input screen displays.
2. Change the active digit by pressing the **UP** or **DOWN ARROW**.
3. Move to the next digit by pressing the **RIGHT ARROW**.
4. When the desired name appears, press **ENTER** to save and return to the F0# menu.
5. Press **EXIT** to return to PROGRAM FORMULAS and select another formula. If all needed formulas are programmed, press **EXIT** again to return to the INSTALLER MENU.

Edit / Add Formula Name

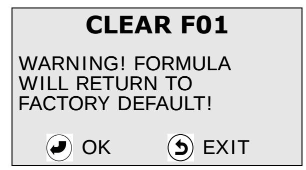


3. 5. Clear Formula

Use this menu only if you want to delete this formula's settings.

1. Select CLEAR FORMULA and press **ENTER**. The CLEAR F0# menu displays a **WARNING!**
2. Press **ENTER** to delete all formula information and return to F0# menu. Press **EXIT** if you DO NOT want to delete the formula settings. Continue pressing **EXIT** to return to the INSTALLER MENU.

Clear Formula Settings



4. Data Transfer

This set of menus allows the installer to transfer data (i.e., formulas, settings, usage reports) to and from the TOTAL ECLIPSE controller via a USB flash drive. In this setting, the word **WRITE** means to send data (often called "download") from the controller to the USB flash drive. The word **READ** means to send data (often called "upload") from the USB drive to the Controller. Sending data can take from 2 to 20 seconds or more.

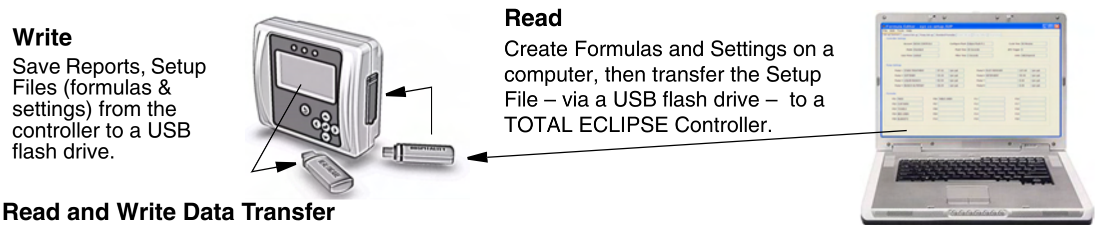


Figure 12 Read and Write Data Transfer

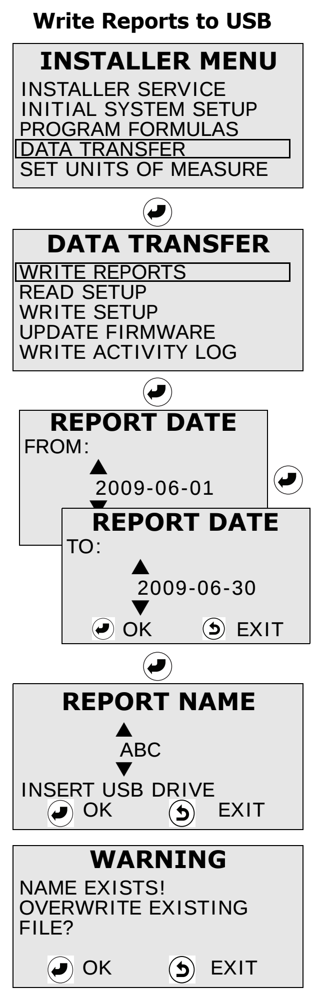
4. 1. Write Reports

Transfer wash machine data, called **Summary Reports**, from the controller to a computer via a USB flash drive. Reports are in HTML format and can be viewed, printed or imported into spreadsheet programs (e.g., Microsoft Excel). Each report includes the Account and Machine names (if input by the installer) and the information included in the date range.

Note	Between 2-3 month's report data can be held in the controller's memory, depending upon machine usage. Once the memory is full, recent data will overwrite the oldest data. **It is recommended that Reports are run every 30-60 days to avoid loss of information.**

Reports appear on the USB flash drive as:

- [NAME]_D.htm (Diagnostic Report)
- [NAME]_F.htm (Formula Report)
- [NAME]_P.htm (Productivity Summary Report)
- [NAME]_S.htm (Settings Report)



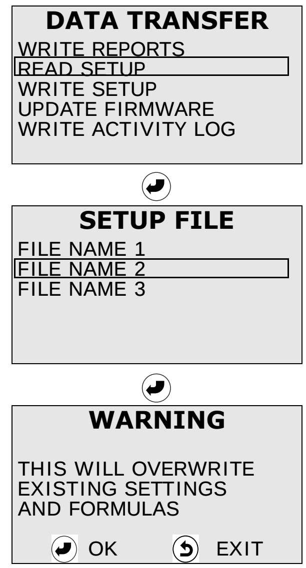
1. From the INSTALLER MENU, select DATA TRANSFER, and press **ENTER**. The DATA TRANSFER menu displays.
2. Select WRITE REPORTS and press **ENTER** to reach the REPORT DATE FROM: screen. The first digit of the year is selected as the active digit.
3. Change the active digit by pressing the **UP** or **DOWN ARROW**. Move to the next digit by pressing the **RIGHT ARROW** .
4. Set the "FROM" date for report information. The default is the last "FROM" date.
5. Press **ENTER** to reach the REPORT DATE TO: screen. Set the end date for report information (in the same manner as "FROM" date). The default is the current date.
6. After setting report dates, press **ENTER** to reach the REPORT NAME screen. Input a unique name with which to save this report to your USB flash drive. The default is the last report name used.
7. + Connect USB flash drive to the controller and press **ENTER**. (If a **duplicate** report name exists on your flash drive, a warning appears and asks if you want to overwrite the existing report. If you do NOT want to replace the existing report, press **EXIT** and input a different name.)
8. The yellow LED on the controller blinks to indicate data transfer, as does the light on the USB flash drive. When data transfer is complete, DATA TRANSFER displays.
9. Press **EXIT** to return to the INSTALLER MENU.

4. 2. Read Setup

Note	Five settings (plus language, date and time) are NOT INCLUDED in data transfer and are unique to each controller. They are: Installer Password, Manager Password, Pump Calibration, Machine Name and Company Name. These must be set individually using each controller's keypad. Look for this icon to find instructions for these settings in this chapter .

Transfer Setup Files (settings and formulas) from a USB flash drive into a TOTAL ECLIPSE controller. If more than six setup files are contained on the connected USB flash drive, they can be viewed by pressing the **UP** or **DOWN ARROW**.

Read Setup File into a Controller



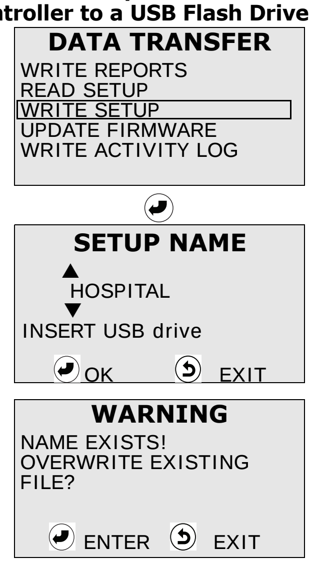
1. Connect a USB flash drive with the setup file(s) to the USB port on the controller (location illustrated in *Figure 5 "USB Flash Drive Connection" on page 13*).
2. From the INSTALLER MENU, select DATA TRANSFER, and press **ENTER**. The DATA TRANSFER menu displays.
3. Select READ SETUP and press **ENTER**. The SETUP FILE menu displays a list of files on the USB drive. If screen is blank, the controller cannot find files. Make sure that a FAT32 formatted, 2GB or smaller, USB flash drive is connected and contains at least one setup file.
4. Select the setup file to send to the controller and press **ENTER**. A warning screen confirms that controller settings will be overwritten.
5. Press **ENTER** again to load the new setup file into the controller (or press **EXIT** to cancel).

4. 3. Write Setup

Note	Five settings are NOT INCLUDED in data transfer nor are they overwritten by the data transfer. They are: Installer Password, Manager Password, Pump Calibration, Machine Name and Company Name. These must be set individually using each controller's keypad. Look for the to find instructions.

Write settings and formulas (a setup file) from the controller to a USB flash drive. Connect a USB flash drive to the Type-A USB port on the controller.

Write Setup File from a Controller to a USB Flash Drive



1. From the DATA TRANSFER menu, select WRITE SETUP and press **ENTER**. The SETUP NAME input screen displays.
2. Name the setup file by changing the active digit with the **UP** or **DOWN ARROW**.
3. Connect a USB flash drive to the USB port on the controller (location illustrated in *Figure 5 "USB Flash Drive Connection" on page 13.*
4. Press the **ENTER** key to load the controller's setup file into the USB flash drive. (If the filename already exists on the USB flash drive, a WARNING screen offers the choice to overwrite the existing file or create a new file with a different name. To input a new name (return to the SETUP NAME input screen), press **EXIT**.

   If there are no Setup Files on the flash drive (or if no USB flash drive is connected), the ERROR message "UNABLE TO OPEN FILE" appears.

4. 4. Update Firmware

DO NOT attempt to update firmware unless directed to do so by Technical Support personnel. Cycle power to the controller if you reach the second UPDATE FIRMWARE screen and cannot proceed with the update.

CAUTION: Installing updated firmware in the controller causes all settings and formulas to be cleared to factory defaults. Save the controller's Setup File to a USB flash drive before updating firmware.

Update Firmware

UPDATE FIRMWARE
STOP!!! DO NOT
PROCEED WITHOUT
PC UPDATE PROGRAM!
ENTER EXIT

4. 5. Write Activity Log

The Activity Log is a more detailed diagnostic report than the Summary Diagnostic Report. The Activity Log gives added details about a particular wash cycle and/or wash operation that will aid in troubleshooting problems. The log contains details about the last 40-50 wash cycles (depending upon the complexity of the cycles), with time-stamped activity of trigger signals, pump dispense signals and the flush signal.

No date range can be selected for this report. All activity is printed, from the oldest to the most recent. If the Activity Log buffer is filled, the most recent activity overwrites the oldest activity.

Note	Activity Log data can be cleared using the Installer Service menu described in Menu *1. 5.“Clear Data Log” on page 26*.

Write Activity Log

DATA TRANSFER
WRITE REPORTS
READ SETUP
WRITE SETUP
UPDATE FIRMWARE
WRITE ACTIVITY LOG

REPORT NAME
▲
MACHINE 23
▼
INSERT USB drive
OK EXIT

1. From the DATA TRANSFER menu, select WRITE ACTIVITY LOG and press **ENTER**. The REPORT NAME input screen displays.
2. Name the Activity Log by changing the active digit with the **UP** or **DOWN ARROW**.
3. Connect a USB flash drive to the USB port on the controller (location illustrated in *Figure 5“USB Flash Drive Connection” on page 13.*
4. Press the **ENTER** key to load the Activity Log file into the USB flash drive.

5. Set Units of Measure

Units of Measure can be set at installation or can be changed while the controller is powered up. Previously input formula amounts are automatically converted to the new Unit of Measure.

Product cost-per-volume is reset to zero, however, as the cost will change based upon the volume measurement used. Product cost must be re-input (*1. 1. 4.“Enter Product Costs (Optional)” on page 25)* whenever the Unit of Measure is changed.

Select SAE / IMPERIAL (LB/OZ) or METRIC (KG/ML) and press **ENTER**.

Set Units of Measure

UNITS-MEASURE
SAE/IMPERIAL (LB/OZ)
METRIC (KG/ML)
ENTER EXIT

Frequently Asked Questions

This section provides answers to some of the most frequently asked questions during calls to our Technical Service Department. These are included in order to provide answers when it is most important: during installation or report evaluation.

How is a Flush System Configured?

The TOTAL ECLIPSE system offer flush manifold control when used with all Orion II, Eclipse or 8-Pump P.I. pumpstands or upgrade kits. When programming for flush installations, confirm that the “Configure PI” setting is appropriate for the Pump Interface (PI) being used and that the Flush Time is set to a non-zero number. Use the illustrations in section *2. 7.“Set Pump Interface” on page 32,* to select the correct PI configuration

How is a Non-Flush System Configured?

Use this selection for non-flush operation. On an 8-Pump P.I., the Flush/Non-Flush Selection Jumper must be in the non-flush position to enable non-flush operation. See *Figure 13* to locate that jumper.

Eclipse Pumpstands with Flush (up to 6 pumps)

This is the factory default P.I. This selection enables the flush control functions of our Eclipse Pumpstands if Flush Time is set to a non-zero number. If no flow is sensed, or water flow falls below .65 GPM, an optional flow switch on the flush manifold causes all pumps to shut down. This provides a safety interlock in the event of low water flow or other water flush system failures.

A flush jumper is present at the flush connector on the Pumpstand. Remove this jumper to connect the Flush Manifold Interface Cable. Pumps will not run without either the flush jumper or a functioning Flush Manifold connected.

Orion 2 Pumpstands (up to 6 pumps) with Flush and an Orion 2 P.I. board

This selection enables the flush control functions of the LM-100, LL-6000 or LL-8000 6-pump Orion systems that use an Orion II P.I. board. Flush Time must be set to a non-zero number. If no flow is sensed, or water flow falls below .65 GPM, an optional flow switch on the flush manifold causes all pumps to shut down. This provides a safety interlock in the event of low water flow or other water flush system failures.

A flush jumper is present at the flush connector on the Pumpstand. Remove this jumper to connect the Flush Manifold Interface Cable. Pumps will not run without either the flush jumper or a functioning Flush Manifold connected.

Orion Pumpstands (up to 8 Pumps) with Flush and an 8-Pump P.I. board

This selection enables the flush control functions of our LM-100 Orion series using an 8-Pump-capable pump interface boards. These are typically used in LL-6000 units, LL-8000 units and 8-Pump upgrade kits. In addition to setting the Controller flush system configurations, confirm that all safety interlocks are set correctly on the PI board, i.e. solenoid connected, pressure or flow switch connected and contacts closed with flow, flush/non-flush jumper set to flush.

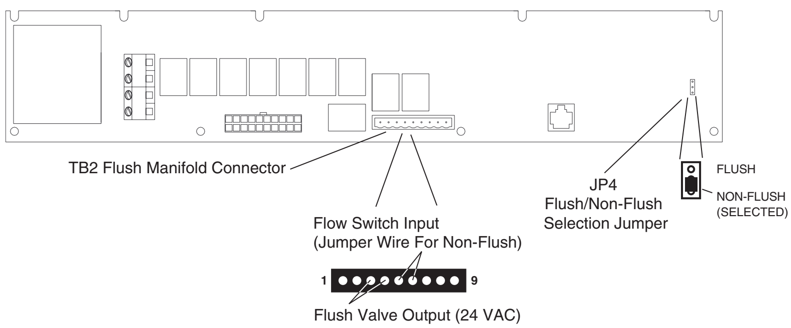


Figure 13 8-Pump P.I. Board Flush/Non-Flush Connections

Note ✍	In flush configurations, multiple pumps triggered to run at the same time will run one at a time, in queue. It is imperative that the installer allow plenty of time between triggers to insure that a pump (or group of pumps) will run for each of its triggers. Failure to allow sufficient time between triggers could result in triggers for pumps being ignored.

What if Auto Formula Select Doesn't Work?

Auto formula select uses a programmable timed washer signal to pre-select the desired dispenser formula for "hands free" operation and dedication of the dispensing system to microprocessor controlled washers. Ideally, use of an unused trigger input to the Machine Interface is advisable. In cases where this is not feasible, you may use a pump trigger signal input if the following guidelines are met:

- The washer must always be run "full cycle" so that the programmed count pump runs to count the load and reset the dispenser to an idle condition.
- The auto formula select signal may not be the trigger signal that starts or ends a formula cycle (first pump triggered starts the formula cycle and the count pump ends the formula cycle).

Failure to follow these guidelines will result in erratic auto selection of formulas. For more information, see *Section 2. 10."Set Auto-Formula Select [AFS] Trigger (Standard Mode ONLY)" on page 33*.

Formula Worksheet

Reproduce this sheet and keep on file for future use when preparing wash formulas prior to programming.

		Formula 1	Formula 2	Formula 3	Formula 4
Pump	**Product**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**
1					
2					
3					
4					
5					
6					
7					
8					

		Formula 5	Formula 6	Formula 7	Formula 8
Pump	**Product**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**
1					
2					
3					
4					
5					
6					
7					
8					

		Formula 9	Formula 10	Formula 11	Formula 12
Pump	**Product**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**
1					
2					
3					
4					
5					
6					
7					
8					

		Formula 13	Formula 14	Formula 15	Formula 16
Pump	**Product**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**
1					
2					
3					
4					
5					
6					
7					
8					

		Formula 17	Formula 18	Formula 19	Formula 20
Pump	**Product**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**	**QTY A B C DLY**
1					
2					
3					
4					
5					
6					
7					
8					

6
Installer Menus: Transfer Setup Files with USB Flash Drive

Formula Editor Setup File Transfer

When a Setup File (includes initial settings and formulas) is saved onto a 16 GB or smaller USB flash drive, it is easy to transfer that file (in the language used for input) to any TOTAL ECLIPSE controller using the controller's DATA TRANSFER function. Create Setup Files using the computer-based Formula Editor software or by downloading them from another TOTAL ECLIPSE controller. Settings that can ONLY be changed via the controller's keypad (Installer and Manager Password; Machine and Company Name; Pump Calibration) are marked with a small icon next to those instructions in *Chapter 5*. Use the keypad to input the Installer Password for access to the controller's Installer Menus. Language, Date & Time must also be set via the keypad (see *"Set Operating Language, Date & Time on Start-Up" on page 11*).

CAUTION	Previously programmed formulas and settings that are stored in the controller will be erased and overwritten when a setup file is transferred from a USB flash drive to the controller. Be certain that you want this to occur. There is NO undo button.

Key Functions

AUTOMATIC KEY REPEAT = Press and HOLD any key

ENTER a menu = **ENTER** key

EXIT to the previous menu without saving changes = **EXIT** key

EDIT / INPUT a number (0-9), letter (A-Z), hyphen (-), underscore (_) or space = **UP / DOWN ARROW** keys

MOVE INPUT CURSOR backward or forward = **RIGHT / LEFT ARROW** keys or

MOVE Selection Box = **UP / DOWN ARROW** keys or

EXIT INSTALLER MENUS = Repeatedly press **EXIT** key

Installer Password and Access to Data Transfer Menu

The factory default installer password is **01234**. For added security, change the password upon installation. See *2. 1. "Edit Installer Password" on page 27*.

1. From the MAIN MENU, move selection box to INSTALLER MENU (last item, after MANAGER REPORTS) and press **ENTER**. The INSTL PASSWORD menu displays.
2. Change the active digit, indicated by the double-arrow cursor, by pressing the **UP** or **DOWN ARROWS**.
3. To move to the next digit, press the **RIGHT ARROW**. To backspace, press the **LEFT ARROW**.
4. When the correct password displays, press **ENTER** to launch the INSTALLER MENU.

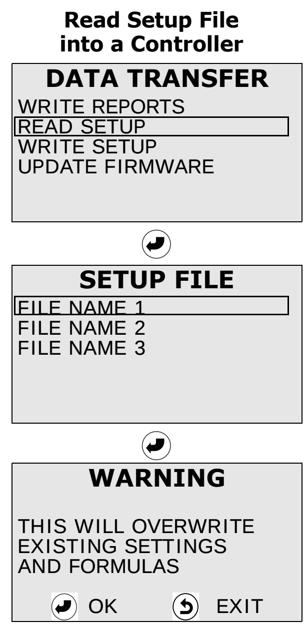
Input Installer Password



Read Setup (transfer a setup file from USB flash drive to a controller)

Note	Five settings (and the controller menu language, date and time) are NOT INCLUDED in a Setup File (file extension .sup) nor are they overwritten by the data transfer. Installer Password, Manager Password, Pump Calibration, Machine Name and Company Name must be set individually using each controller's keypad. Look for the [icon] in the previous chapter to find instructions for editing these settings.

Load settings and formulas (a Setup File) from a USB flash drive into a TOTAL ECLIPSE controller. If more than six setup files are on the connected USB flash drive, they can be viewed by pressing the **UP** or **DOWN ARROWS**.



1. Connect a USB flash drive with a Setup File to the Type-A USB port on the controller (see *Figure 5 "USB Flash Drive Connection" on page 13*).
2. From the INSTALLER MENU, select DATA TRANSFER and press **ENTER**. The DATA TRANSFER menu displays.
3. Select READ SETUP and press **ENTER**. The SETUP FILE menu displays a list of files on the USB drive.
4. Select the setup file to send to the controller and press **ENTER**. A warning screen confirms that controller settings will be overwritten.
5. Press **ENTER** again to load the new setup file into the controller (or press **EXIT** to cancel).

Note	If the screen displays "ERROR: UNABLE TO OPEN FILE", there may be no readable .sup file on the USB flash drive.

6. To confirm transfer of the new data, press **EXIT** to go back to the INSTALLER MENU and select the PROGRAM FORMULAS menu. View formula settings to confirm.

Calibrate Pumps

You must calibrate all pumps you will use in a formula. Programmed formulas will <u>not run</u> if pumps are not calibrated. In Relay Mode, you must calibrate pumps in order to establish pump output. See *"Calibrate Pumps" on page 23*.

Prime Pumps

Prime the intake tube after product container or tube change. An animated progress bar indicates that prime is running. See *"Prime Pump" on page 23*.

Additional Data Transfer Information

Transfer Setup Files between TOTAL ECLIPSE controllers or create and save Controller usage reports (in HTML format) from a controller to a computer via a USB flash drive. See *"Data Transfer" on page 39* for details.

Language Files

Two types of language files can be downloaded from the Nova Products section of the Hydro Systems' website. A **Formula Editor language file** changes the menu screens in Formula Editor software (file extension **.properties**). Download these language files to the computer on which the Formula Editor is installed and save them in: *Program Files\Nova Controls\Formula Editor\Languages* folder. Start Formula Editor and click Tools/Customiz /Languages.

To change the TOTAL ECLIPSE controller's menu language, you must download a **TOTAL ECLIPSE controller language file** (file extension **.LNG**) to a USB flash drive. Power off the TOTAL ECLIPSE controller, connect the USB flash drive, and restore power to the controller. Select the new language when the LANGUAGE menu appears.

7
Reports

TOTAL ECLIPSE Controller Reports

The TOTAL ECLIPSE controller generates four types of reports, collectively called the Summary Reports, as illustrated on *pages 46-49*. All information contained in these reports is secure; access is controlled via a password. From the Main Menu, the Manager Password only allows access to the Productivity Report. From the Installer Menu's Data Transfer function, the Installer Password allows access to all four Summary Reports.

Reports are saved to a USB flash drive and may then be downloaded into a computer with a USB port. Reports are in HTML format. They can be viewed and printed or imported into spreadsheet programs, such as Microsoft Excel. For additional data transfer instructions, see *Section 4. 1.“Write Reports” on page 39.*

Summary Reports have the same header and footer. The header contains four editable fields:

- Account Name
- Machine Name
- FROM Date (report includes information beginning on Midnight of this date)
- TO Date (report includes information through 11:59 pm on this date)

Each footer contains the Total Eclipse firmware part number and revision.

Sample Controller Reports

The following pages contain a sample of each time of report (saved with the following file names):

- [CUSTOM NAME]_D.htm (Diagnostic Report) – Tally of Pump Triggers and User Primes
- [CUSTOM NAME]_F.htm (Formula Report) – Formula Pump Amounts, Delay and Count Pump (in red)
- [CUSTOM NAME]_P.htm (Productivity Report) – Total Load Counts, Weights and Product Costs
- [CUSTOM NAME]_S.htm (Settings Report) – Overview of Controller Settings
- [CUSTOM NAME]_L.htm (Activity Log Report) – Detailed Diagnostic Report

Definitions of “Productivity Report” Fields

Term	Definition
Total Loads	Load counts since last “Clear Data Log.” One load counts every time the count pump runs for the full amount programmed
Incomplete Loads	Loads in which not all programmed pumps ran before the count pump
Total Weight	Total of operator-entered and default weights.
Chemical Cost	Product cost per unit as set by the installer. If Unit of Measure was changed after costs were entered, the cost will show as zero unless it was re-entered for the new Unit of Measure.
Chemical Cost / 100 Weight	Real time costs while each pump runs, based on product cost per unit (gallon or liter) that was set by installer.

Productivity Report

Productivity Report

Acount: NOVA CONTROLS | Report From: 2009-01-01
Machine: | To: 2009-01-31

#	Formula	Total Loads	Incomplete Loads	Total Weight	*Chemical Cost	*Chemical Cost / 100 Weight
1		0	0	0	0.11	0.00
2	CURTAINS	0	0	0	0.00	0.00
3	PADS	0	0	0	0.00	0.00
4	TOWELS	0	0	0	0.00	0.00
5	BED LINEN	0	0	0	0.00	0.00
6	BLANKETS	0	0	0	0.00	0.00
7	TABLE LINEN	0	0	0	0.00	0.00
8		0	0	0	0.00	0.00
9		0	0	0	0.00	0.00
10		0	0	0	0.00	0.00
11		0	0	0	0.00	0.00
12		0	0	0	0.00	0.00
13		0	0	0	0.00	0.00
14		0	0	0	0.00	0.00
15		0	0	0	0.00	0.00
16		0	0	0	0.00	0.00
17		0	0	0	0.00	0.00
18		0	0	0	0.00	0.00
19		0	0	0	0.00	0.00
20		0	0	0	0.00	0.00

*Does not include User Prime costs.

TOTAL ECLIPSE
P/N: 95-08489-00A
REV: 697 Copyright © 2008 Nova Controls

file:///W|/Personal/Janet/Total Eclipse/TE Reports/JK1_P.HTM (1 of 2)11/20/2008 5:02:01 PM

Figure 14 Controller Productivity Report (Sample)

Formula Report

Acount: NOVA CONTROLS | Report From: 2009-01-01

Machine: | To: 2009-01-30

RED = Count Pump

F01		COST: 23.22		DEFAULT WEIGHT: 0				
PUMPS	STAIN TREATMENT	SOFTENER	LIQUID BLEACH	BLEACH ALTERNAT	RUST REMOVER	DETERGENT	P7	P8
DELAY	0	0	0	0	0	0	0	0
QTY A OZ	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QTY B OZ	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QTY C OZ	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CURTAINS		COST: 9.80		DEFAULT WEIGHT: 240				
PUMPS	STAIN TREATMENT	SOFTENER	LIQUID BLEACH	BLEACH ALTERNAT	RUST REMOVER	DETERGENT	P7	P8
DELAY	0	0	0	0	0	0	0	0
QTY A OZ	0.0	0.0	0.0	4.4	0.0	6.0	0.0	0.0
QTY B OZ	0.0	0.0	0.0	4.8	0.0	6.2	0.0	0.0
QTY C OZ	0.0	0.0	0.0	5.8	0.0	6.6	0.0	0.0

PADS		COST: 24.09		DEFAULT WEIGHT: 200				
PUMPS	STAIN TREATMENT	SOFTENER	LIQUID BLEACH	BLEACH ALTERNAT	RUST REMOVER	DETERGENT	P7	P8
DELAY	0	0	0	0	0	0	0	0
QTY A OZ	1.0	2.0	3.0	4.0	5.0	0.0	0.0	0.0

Figure 15 Controller Formula Report (Sample Page 1 of multiple pages)

Settings Report

Settings Report

Acount: NOVA CONTROLS
Machine:

Report From: 2009-01-01
To: 2009-01-30

OPERATION MODE	STANDARD
UNITS-MEASURE	SAE/IMPERIAL (LB/OZ)
TRIGGER FILTER	2 SECONDS
PUMP INTERFACE	ECLIPSE FLUSH P.I.
FLUSH TIME	10 SEC
CYCLE TIME LIMIT	90 MIN
USER PRIME	LIMITED 30 SEC
AFS TRIGGER	5

#	PUMP	CALIB. IN OZ/MIN	COST/GAL	TUBE CHANGE DATE
1	STAIN TREATMENT	84.2	97.02	01-01-08
2	SOFTENER	0.0	33.20	01-01-08
3	LIQUID BLEACH	0.0	52.54	01-01-08
4	BLEACH ALTERNAT	0.0	26.04	01-01-08
5	RUST REMOVER	0.0	107.69	01-01-08
6	DETERGENT	0.0	45.99	01-01-08
7		0.0	0.00	01-01-08
8		0.0	0.00	01-01-08

TOTAL ECLIPSE
P/N: 95-08489-00A
REV: 697
Copyright © 2008 Nova Controls

file:///W|/Personal/Janet/Total Eclipse/TE Reports/JK1_S.HTM11/20/2008 5:18:02 PM

Figure 16 Controller Settings Report (Sample)

Diagnostic Report

Acount: NOVA CONTROLS | Report From: 2009-01-01
Machine: | To: 2009-01-30

USER PRIME	STAIN TREATMENT	SOFTENER	LIQUID BLEACH	BLEACH ALTERNAT	RUST REMOVER	DETERGENT	P7	P8
Amount	0	0	1	0	0	0	0	0

F01	STAIN TREATMENT	SOFTENER	LIQUID BLEACH	BLEACH ALTERNAT	RUST REMOVER	DETERGENT	P7	P8
Amount A	0	0	0	0	0	0	0	0
Amount B	0	0	0	0	0	0	0	0
Amount C	0	0	0	0	0	0	0	0

CURTAINS	STAIN TREATMENT	SOFTENER	LIQUID BLEACH	BLEACH ALTERNAT	RUST REMOVER	DETERGENT	P7	P8
Amount A	0	0	0	0	0	0	0	0
Amount B	0	0	0	0	0	0	0	0
Amount C	0	0	0	0	0	0	0	0

PADS	STAIN TREATMENT	SOFTENER	LIQUID BLEACH	BLEACH ALTERNAT	RUST REMOVER	DETERGENT	P7	P8
Amount A	0	0	0	0	0	0	0	0
Amount B	0	0	0	0	0	0	0	0
Amount C	0	0	0	0	0	0	0	0

TOWELS	STAIN TREATMENT	SOFTENER	LIQUID BLEACH	BLEACH ALTERNAT	RUST REMOVER	DETERGENT	P7	P8
Amount A	0	0	0	0	0	0	0	0
Amount B	0	0	0	0	0	0	0	0
Amount C	0	0	0	0	0	0	0	0

Figure 17 Controller Diagnostic Report (Sample)

Activity Log Report

Account:

Machine:

Time Stamp	Formula	T1	T2	T3	T4	T5	T6	P1	P2	P3	P4	P5	P6	P7	P8	Flush
2009-07-01 09:46:02	F01	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
2009-07-01 09:46:02	F01	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
2009-07-01 09:46:04	F01	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0
2009-07-01 09:46:04	F01	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0
2009-07-01 09:46:05	F01	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
2009-07-01 09:46:19	F01	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
2009-07-01 09:46:27	F01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009-07-01 09:46:36	F01	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2009-07-01 09:46:38	F01	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
2009-07-01 09:46:41	F01	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
2009-07-01 09:46:50	F01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009-07-01 09:46:58	F01	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2009-07-01 09:47:00	F01	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
2009-07-01 09:47:01	F01	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2009-07-01 09:47:05	F01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009-07-01 09:47:13	F01	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
2009-07-01 09:47:15	F01	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0
2009-07-01 09:47:16	F01	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
2009-07-01 09:47:20	F01	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
2009-07-01 09:47:28	F01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TOTAL ECLIPSE
P/N: 95-09114-00A
REV: 938
Copyright © 2008 Nova Controls

Figure 18 Activity Log

PC-Based Formula Editor Summary Report

Formula Editor's Summary Report provides complete details of settings and formulas within a Setup File. To view this report in an HTML browser window, click CTRL + P. You can then save and/or print the report.

Two pages of a sample report follow:

xyz co setup.sup Summary Report

NOVACONTROLS
LEADING THE WAY

NAME: xyz co setup.sup
Date: Wed Nov 12 10:44:39 PST 2008

Controller Settings

Account: NOVA CONTROLS
Mode: Standard
Units of Measure: SAE/Imperial
User Prime: Limited
Configure Flush: Eclipse Flush P.I.
Flush Time: 30 Seconds
Filter Time: 2 Seconds
Cycle Time: 90 Minutes
AFS Trigger: 5

Pump Settings

Pump	Chemical Name	Cost Per Volume
P01	STAIN TREATMENT	25.63 / per gallon
P02	SOFTENER	8.77 / per gallon
P03	LIQUID BLEACH	13.88 / per gallon
P04	BLEACH ALTERNAT	6.88 / per gallon
P05	RUST REMOVER	28.45 / per gallon
P06	DETERGENT	12.15 / per gallon
P07		0.0 / per gallon
P08		0.0 / per gallon

file:///C|/Program Files/Nova Controls/Formula Editor/xyz co setup.html (1 of 3)11/20/2008 4:30:02 PM

Page 1

xyz co setup.sup Summary Report

Formula Settings

Formula Name F01: PADS
Default Load Weight: 200 (lbs)
Count Pump: default

Pump:	Delay:	Amount A (oz):	Amount B (oz):	Amount C (oz):
P01	0	1	1	1
P02	0	2	2	2
P03	0	3	3	3
P04	0	4	4	4
P05	0	5	5	5

Formula Name F02: CURTAINS
Default Load Weight: 240 (lbs)
Count Pump: default

Pump:	Delay:	Amount A (oz):	Amount B (oz):	Amount C (oz):
P04	0	4	5	6
P06	0	6	6	7

Formula Name F03: TOWELS
Default Load Weight: 150 (lbs)
Count Pump: default

Pump:	Delay:	Amount A (oz):	Amount B (oz):	Amount C (oz):
P06	0	3	4	4

Formula Name F04: BED LINEN
Default Load Weight: 230 (lbs)
Count Pump: default

Pump:	Delay:	Amount A (oz):	Amount B (oz):	Amount C (oz):
P01	0	1	1	2
P02	0	2	2	3
P03	0	3	3	4
P04	0	4	4	5

file:///C|/Program Files/Nova Controls/Formula Editor/xyz co setup.html (2 of 3)11/20/2008 4:30:02 PM

Page 2

Figure 19 Formula Editor Summary Report (Sample)

This page intentionally left blank.

8
Troubleshooting & Specifications

Troubleshooting Basics

Confirm Correct Pump Calibration and Formula Programming in Controller

When troubleshooting for no product on signal, always confirm pump calibration and formula amounts are correctly programmed in the Controller.

We advise that you keep an inventory of the following new or "known good" spare parts to use for substitution purposes when troubleshooting (or you can "borrow" components from an adjacent dispensing system):

- Controller
- Pump Interface PCB
- Wiring Harness Plate Assy.
- J1 Cable
- Machine Interface (with J2 Cable)

Confirm J1 and J2 Cable Integrity

Always ensure that all telco connectors (J1 and J2 Cables) are clean and corrosion free. Examine cables for cuts or kinks which can indicate broken wires. When in doubt, replace defective cables.

Pump Run Order

Only one pump may run at a time in flush mode. Multiple pumps that are triggered simultaneously will queue up. Based on this rule, all pumps triggered will run as long as the load count pump trigger is last.

Sufficient time must be allowed between triggers to enable all triggered pumps to run. Failure to allow sufficient time between triggers could result in triggers for pumps being ignored.

Flush Manifold Operation

When using the TOTAL ECLIPSE Controller with the optional Flush Manifold, water flow is sensed whenever the Controller calls for water flush. If no flow is sensed, or water flow falls below .65 GPM, an optional flow switch on the flush manifold causes all pumps to shut down. This provides a safety interlock in the event of low water flow or other water flush system failures. Refer to the *Flush Manifold Installation & Operation Manual* for more information regarding the Flush Manifold option.

Note	A flush jumper is present at the flush connector on the Pumpstand. For flush operation, remove this jumper and connect the Flush Manifold Interface Cable in its place. (Retain the flush jumper for possible future use.) Pumps will not run without either the flush jumper or a functioning Flush Manifold connected. On an 8-Pump P.I., the Flush/Non-Flush Selection Jumper must be in the Flush position for flush operation. See *Figure 13 "8-Pump P.I. Board Flush/Non-Flush Connections" on page 5-42.*

Troubleshooting Guide

The most important first step in troubleshooting the dispensing system is to confirm the failure or symptom that was reported.

SYMPTOM	OBSERVATION / CHECK	CAUSE	CURE
Dead, no display	1. No power to unit. 2. No power to PI PCB. 3. Power OK, no Controller display.	1. No power at source. 2. Tripped or defective circuit breaker. 3. Defective PI PCB, J1 Cable, or Controller.	1. Restore Power. 2. Reset, or replace, circuit breaker. 3. Substitute components, one at a time.
No pumps run on Prime or on signal	1. Check flush connector. 2. Check J1 Cable connections.	1. No contact closure at flush connector. 2. Calibration not performed. 3. Damaged J1 Cable. 4. Defective PI PCB, J1 Cable, or Controller.	1. Reconnect Flush Jumper (non-flush) or troubleshoot flush system flow switch. 2. Replace J1 Cable. 3. Substitute components, one at a time.
Some (not all) pumps do not run on Prime or on signal.	1. Check motor wire connections. 2. Check J1 Cable connections.	1. Loose motor wire connection. 2. Calibration not performed. 3. Damaged J1 Cable. 4. Defective PI PCB, J1 Cable, or Controller.	1. Reconnect loose motor wire connection. 2. Calibrate Pumps. 3. Replace J1 Cable. 4. Substitute components, one at a time.
One or more pumps do not run on signal, but all pumps Prime OK.	1. Confirm Pump Calibration. 2. Is there a delay time on a pump? 3. Confirm supply signal is at Machine Interface (observe LED and/or measure with meter). 4. If Pump Interlock is on, is this the first signal set for this pump? 5. Check J2 Cable; check components. 6. Check pump amounts.	1. Pump(s) not calibrated. 2. Delay time preventing pump from running or placing pump in queue. 3. Washer not sending signal, or signal wire loose. 4. Pump Interlock only allows dispenser to recognize first signal for each pump in a load. 5. Damaged or defective Machine Interface, J2 Cable, or Controller. 6. Zero amount programmed.	1. Calibrate pump(s). 2. Reprogram pump delay times as described in Section *3."Program Formulas" on page 5-36*. 3. Repair washer, reprogram washer, reconnect signal wire(s). 4. Reset Controller (turn power off, then on). 5. Replace J2 Cable, substitute components, one at a time. 6. Test run pump amounts with Up Arrow key in "Program Formulas" menu in Program Mode.
Not counting loads.	1. Check that the "Count Pump" runs. (Count Pump = highest pump # in a formula with a non-zero amount programmed.) 2. Check formula programming.	1. "Count Pump" not running at all. 2. All Count Pump Amounts programmed are not all signaled to run.	1. Troubleshoot per above. 2. Reprogram washer supply signals and/or dispenser Controller formulas to insure that all Count Pump amounts run.

Load Count or Pump Run Errors

Some load count or pump run errors can be avoided by (1) ensuring that each wash formula has a load count pump set to be the last pump run within that formula and that (2) the washer has completed the cycle and all pump amounts have been dispensed. We suggest that you use the diagnostic capabilities of the "Pump Run Counts" as a basis on which to reconstruct a history of machine or operator problems that may explain poor results, excessive costs, or both.

Additional Data Logging Factors ☞	The dispenser "formula cycle" begins upon the first pump trigger and ends when the count pump dispenses it's last programmed amount, or when the dispenser operation is interrupted. If an Installer Password is input while a formula is running, the formula is aborted, the load is recorded as an incomplete load and the formula must be restarted upon exiting the Installer Menus. Synchronization of the dispenser controller to washer cycles is critical. Ensure that the load count pump assignment is correct for all wash formulas to assist in maintaining this synchronization. The Cycle Timer begins upon the first pump trigger in a load. This timer will reset the controller in the event that no count pump is run.

Load Counts Low

If load counts seem low, confirm the number of times the count pump ran vs. other pumps in the formula to see if the washer trigger signal is inconsistent or if the machine operator may be short cycling the washer.

Load Counts High

Confirm the number of times that the count pump ran by checking the washer trigger signal for the count pump.

Ordering Information – Controller and Accessories

Description	Part Number
Total Eclipse Controller (Lt. Grey/Teal)	01-08500-00
Total Eclipse Controller (Black/Red)	01-08900-00
Wall Mounting Bracket Kit (Grey)	13-08462-00
Wall Mounting Bracket Kit (Black)	13-08916-00
Machine Interface Module with J2 Cable, 7.5 ft. (2.3 meter) (Black)	03-03609-02
Machine Interface Module with J2 Cable, 7.5 ft. (2.3 meter) (Grey)	03-08771-02
J1 Cable, 7.5 foot (2.3 meter)	13-05516-075
J1 Cable, 15 foot (4.6 meter)	13-05516-150
J1 Cable, 30 foot (9.2 meter)	13-05516-300
J2 Cable, 7.5 foot (2.3 meter)	13-07492-075
Telco Cable w/ Coupler, Kit, 15 foot (4.6 meter)	13-03312-15
Telco Cable w/ Coupler, Kit, 30 foot (9.2 meter)	13-03312-30

Specifications

TOTAL ECLIPSE Controller Specifications	
Dimensions	
Size	5.2" W x 4.50" H x 2.5" D (13.2 cm W x 11.4 cm H x 6.4 cm D)
Weight	0.65 lb. (0.30 kg)
Power Requirements	
Power Rating	SELV, Power source is pumpstand.
General	
Pump Capacity	99.99 oz. (2999 ml.) 8 pump (with 3 amount settings per pump) maximum
Data Input Field	15 characters maximum (letters A-Z, numbers 0-9, hyphen [-], underscore [_] and space)
Environmental	
IP Rating	44
Pollution Category	2
Installation Category	II
Temperature	10° to 49° C (50° to 120° F) maximum
Humidity	95% relative humidity maximum
Indoor Installation	Approved for indoor use only. Must not be installed outdoors.
Altitude	Install at or below 6.500 ft. (2000 M) maximum

* All specifications subject to change without notice.

Limited Warranty

SELLER warrants solely to BUYER the Products will be free from defects in material and workmanship under normal use and service for a period of one year from the date of completion of manufacture. This limited warranty does not apply to (a) hoses; (b) and products that have a normal life shorter than one year; or (c) failure in performance or damage caused by chemicals, abrasive materials, corrosion, lightning, improper voltage supply, physical abuse, mishandling or misapplication. In the event the Products are altered or repaired by BUYER without SELLER'S prior written approval, all warranties will be void.

NO OTHER WARRANTY, ORAL, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, IS MADE FOR THESE PRODUCTS, AND ALL OTHER WARRANTIES ARE HEREBY EXPRESSLY EXCLUDED.

SELLER'S sole obligation under this warranty will be, at SELLER'S option, to repair or replace F.O.B. SELLER'S facility in Cincinnati, Ohio any Products found to be other than as warranted.

Limitation of Liability

SELLER'S WARRANTY OBLIGATIONS AND BUYERS REMEDIES ARE SOLELY AND EXCLUSIVELY AS STATED HEREIN. SELLER SHALL HAVE NO OTHER LIABILITY, DIRECT OR INDIRECT, OF ANY KIND, INCLUDING LIABILITY FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OR FOR ANY OTHER CLAIMS FOR DAMAGE OR LOSS RESULTING FROM ANY CAUSE WHATSOEVER, WHETHER BASED ON NEGLIGENCE, STRICT LIABILITY, BREACH OF CONTRACT OR BREACH OF WARRANTY.

Index

Numerics

8-Pump P.I. Board 8, 31
  flush connection/operation 42

A

Account Name 31
Acronyms & Abbreviations
  .LNG=Total Eclipse Controller Language File 46
  .PROPERTIES=Formula Editor Language File 46
  .SUP=Setup File of Settings and Formulas 46
  AFS=Auto Formula Select 2
  CALIB=Calibration 23
  E1=Event 1 28
  F01=Formula 1 35
  FAT32=USB flash drive format 40
  G1=Group 1 29
  GPM=Gallons per Minute 2
  ID=Identifying Number 34
  INSTL=Installer 21
  LCD=Controller Display Screen 34
  MAX=Maximum 30
  MGR=Manager 18
  MI=Machine Interface 2
  O1=Occurrence 1 30
  P.I.=Pump Interface 31
  P1=Pump 1 25
  P1A=Pump 1, Amount A 35
  TRIG-Trigger Signal 29
  VOL=Volume 24
Active Pump Symbol 15
Amount Pumped
  view totals 26
Animated Progress Bars 14
Arrows on Keypad 13
Auto Formula Select (AFS) 6, 19
  set trigger 33
  troubleshooting 42
Auto-Key Repeat 13

B

Button & Menu Guide 16
Buttons 14

C

Cable runs, maximum length 9
Calibrate Pumps 23, 24, 55
Change Operating Language 11, 46
Clear
  Data Log 26
Company Name 31
Controller Installation 10
  diagram 11
Controller Keypad 13, 14
Controller Specifications 58
Cost of Chemical, input 25
Count Pump
  overview 6
  set 37
Counts
  too low or too high 57
Cycle Time 6
  set 32

D

Data
  Log, reset to zero 26
  logging errors 56
  recording 2
  transfer 46
  transfer menus 39
Date Set 12
Default Load Weight 17, 37
Display Backlight Shuts Off 17
Download Data 47

E

Eclipse P.I. Board 31
  flush enabled 42
Electrical Warning 9
Emergency Pump Stop 17
Enter Product Costs 25
Error in Pump, symbol for 15
Errors on Reports 57
Event Mode 4
  set 28

F

Factory Defaults 34
Filter Time 7
  set 33
Firmware Update 41
Flush System
  8-pump P.I. connections 42
  calibration 23
  configuration 41
  enable 32
  manual flush operation 18
  operation overview 6
  troubleshooting operation 55
Flush Time
  set 32

Formula
about formulas 35
clear settings 38
overview 7
programming notes 36
Quick-Select Button 15
rules 7
set name 38
set pump amounts & delay 36
transfer from USB stick 46
worksheet 43
Formula Editor
about 1
language files 46
load Setup File to controller 40, 46

G

Green LED, Power On 13
Group Interlock 5
set 29
Group Mode 5
set 28

H

Home Screen 15
unexpectedly appears 17
Hot Keys 15

I

Initial System Setup 27
Installer Menus
installer service 23
password access to 16, 21
top level menu tree 22
Installer Password 21, 45
edit 27
Inventory
of spare parts for troubleshooting 55

J

J1 & J2 Cable Connections 9
J1 cable
maximum length 9

K

Key Functions 13, 14, 21
Keypad & Menu Guide 16

L

Language Selection 11, 46
LCD Contrast, set 34
Load Count
by Operation Mode 6
view totals 26
Load Files and Reports 39
Load Size/Weight
change for single load 17
set default 37
view totals 26

M

Machine Interface Installation 9
Machine Name 31
Main Menu 15, 17
Manager Password
edit 27
input for report 18
Manual Flush
enable 32
operation 18
Menu Symbols 14, 15
Menus
installer menu tree diagram 22
navigation 13
operator menu tree diagram 16
Modes of Operation
An Overview 3
Event Mode 4
end of load (count) 4
set 28
trigger signal connections 4
Group Mode 5
set 28
group interlock 29
Occurrence Mode 5
set 30
Relay Mode 4
setup 28
simple setup 4
Standard Mode 4
set 27

N

Name
Account 31
Company 31
Formula 38
Machine 31
Pump 25
Naming Conventions 58
Non-Flush Operation 7
Non-Flush PI 41

O

Occurrence Mode 5
set 30
Operating Language
select or change 11
Operator Menus
guide & menu tree 16
Operator Override
load weight/size 17
Ordering Information 57

Orion II P.I. Board 31
  flush operation 42

P

P.I. Boards 31
Password 21
  change 27
Prime Pumps
  enable operator prime 33
  operator 17
  troubleshooting 56
Principle of Operation 2
Product Levels 2
Programming
  controller settings 21
  formulas 35
  Standard or Relay Mode minimum requirements 21
Pump
  calibration menus 23
  capacity 58
  icon on Home Screen 14
  name 25
  prime menu 23
  run order 55
  service menu 23
  set amounts and delay 36
  symbol for "not calibrated" 15
  troubleshooting 56
Pump Interface
  identification 31

R

Read Setup 40
Recovery from Update Error 41
Relay Mode 4
  set 28
  simple setup 4
Reports 47
  download to USB flash drive 39
  for Manager 18
  sample Diagnostic Report 51
  sample Formula Report 49
  sample Productivity Report 48
  sample Settings Report 50
  save all to USB flash drive 39
Reports, Formula Editor
  sample Summary Report 53

S

Save Button 13
Screen
  adjust contrast 34
  light shuts off 17
Send Setup File from USB Flash Drive to Controller 46
Set...(Look under Name of Setting) 21
Settings that Must Be Set with Keypad 21, 45
Setup File
  transfer from controller 40
  transfer to controller 40, 46
  upload 46
Signal Filter Time 7
  not used with AFS 7
  set 33
Software ID 34
Standard Mode 4
  quick start programming 21
  set 27
Supply Trigger Wiring 10
System Components 1
System Diagram 3

T

Time Set 12
Trigger Signal Filter Time 7
Trigger Signals
  icon on Home Screen 15
  wiring connections 10
Troubleshooting
  Basics 55
  Guide 56
Tube Change Date, input 25

U

Units of Measure
  set 41
Update Firmware 41
Upload Formulas and Settings 46
USB Flash Drive
  maximum size / format 13
USB Port Types & Functions 13
User Prime 17, 18
  set 33

V

View Load Count, Total Weight, Amount Pumped 26

W

Warranty 58
Washer Supply Signals
  wiring connections 10
Write Reports 39
Write Setup 40

Hydro Systems Company
www.hydrosystemsco.com
A DOVER™ COMPANY
3798 Round Bottom Road, Cincinnati, OH 45244 USA ▪ Phone (513) 271-8800 ▪ Fax: (513) 271-0160

P/N 20-08490-00 Rev. B